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Ontario

ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 166

DATE: Wednesday, December 6th, 1989

BEFORE: M.I. JEFFERY, Q.C., Chairman

E. MARTEL, Member

A. KOVEN, Member

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EA-87-02

HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental Assessment for Timber Management on Crown Lands in Ontario;

- and -

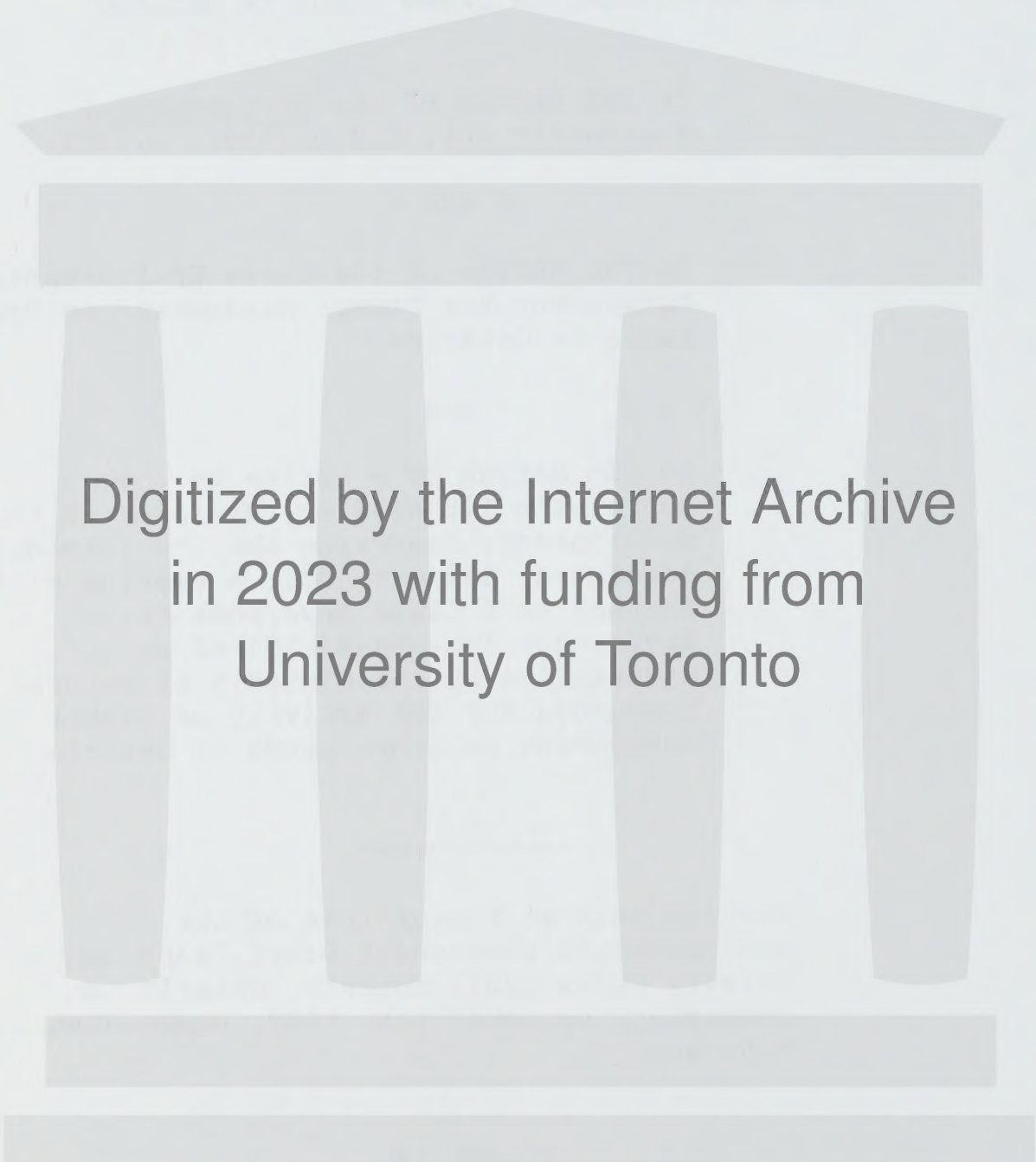
IN THE MATTER OF a Notice by the Honourable Jim Bradley, Minister of the Environment, requiring the Environmental Assessment Board to hold a hearing with respect to a Class Environmental Assessment (No. NR-AA-30) of an undertaking by the Ministry of Natural Resources for the activity of timber management on Crown Lands in Ontario.

Hearing held at the offices of the Environmental Assessment Board, 2300 Yonge Street, Suite 1201, Toronto, Ontario, on Wednesday, December 6th, 1989, commencing at 9:00 a.m.

VOLUME 166

BEFORE:

MR. MICHAEL I. JEFFERY, Q.C.	Chairman
MR. ELIE MARTEL	Member
MRS. ANNE KOVEN	Member



A P P E A R A N C E S

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---Upon commencing at 9:05 a.m.

THE CHAIRMAN: Good morning. Be seated, please.

MR. TURKSTRA: Good morning, Mr. Chairman.

THE CHAIRMAN: Ms. Kleer?

DEAN GORDON BASKERVILLE, resumed

CROSS-EXAMINATION BY MS. KLEER:

Q. Good morning, Dr. Baskerville. Okay. My first question --

THE CHAIRMAN: I don't think your switch is on.

MS. KLEER: Q. Okay. My first question is just a point of clarification arising from your evidence yesterday. Is it, in your opinion, most desirable from a manager's perspective to have timber management unit boundaries, wildlife management unit boundaries and fisheries unit boundaries covering the same land base?

A. Is it preferable?

Q. Most desirable?

A. Yes. The answer to that I think would have to be yes wherever there is an attempt to integrate these and if you want the management together, realizing that one influences the other or

actions taken to serve one element of the resource that influence availability of other elements, then it's going to be simpler, easier, more effective where the tools of control are consistently applied on the same area.

Q. Thank you. And another point of clarification. You have spoken at some length about objectives. Am I correct in understanding your evidence that the setting of those objectives for non-timber values is not something which the unit forest manager will decide, according to your model?

A. The setting of objectives in resource management is rarely I think a technical issue and it's a technical problem to present the reasonable opportunities to look at the production possibilities, but the actual choice of which of the possible futures we are going to try and make unfold is going to be largely a decision of the owner, I suppose, in simplest terms. So that it becomes a social issue.

Q. So that will the person deciding on what that objective will be, or the persons deciding on that objective be addressed differently depending upon which non-timber value you have, or is that something which your model deals with?

A. I'm not sure I understand the

question.

Q. I guess my question is: Who makes the decision about non-timber values and does it differ between non-timber values and does your model address that question at all?

A. I see. The model we are talking about here is not a computer model, just a structural model for approaching how to get an objective.

I suppose the most accurate word to describe how objectives will evolve is negotiate, that in fact rarely will there be a simple way to say: This is what everybody really really wants. They are -- the values will conflict and there needs to be that way to trade those off. There needs first -- I believe we need first a way to illustrate what the possible trade-offs are and then there must be a firm choice of that is the trade-off we will accept.

The 'we' in that case must be the people who are ultimately responsible for -- have authority over the property in question.

THE CHAIRMAN: Well, if you are dealing with a provincial objective, would that be the legislature, in your view?

THE WITNESS: I suppose in the ultimate sense it has to be then for Crown land. For a

management unit you might use the process that is in place now to find out what is required and what are the local trade-offs and build from that, rather than try to do it from top down.

MS. KLEER: Q. Okay. I would like to turn to page 84 of your audit which is Exhibit 16. Now, in the second full paragraph at the bottom, actually I will start two sentences from the end of that paragraph, you write:

"The approach to discovering public opinion about planning issues is open but it is being used to justify actions or inactions rather than to determine what values the public expect from the resource so that management can be designed to achieve those values to the extent possible."

Now, just stopping there for a moment. The phrase, but it is being used to justify actions or inactions; i.e., public opinion is being used in that way, can you expand upon that, what you mean by that phrase?

In your examination what was the public opinion doing?

A. There is a tendency as we grope to

find ways to do this, to use opportunities for public expression either to, as I've said, prevent something or to make a single point rather than to try and find a balance, and the material that I read that came from the public hearings which was all available to me, and there was little or no evidence that there had been any discussion about what the trade-offs should be, only a few - relatively few too, surprisingly - few people had showed up and said: Here's some things that we would not like, but in terms of searching for an objective, that wasn't happening.

Q. So you see the role of the public then as feeding into what those objectives would be, I take it?

A. Yes. If it's public property, then surely the objective must be determined that way.

Q. And then the trade-offs that are made, how will the public feed into that, what kind of a forum could you see for developing or working at trade-offs in a public way?

A. If I could answer that in the sense of what an approach I think might work, and not attempting to be prescriptive.

There are some approaches that I think work. You can -- we have not made very much attempt in

this country to display the alternatives in a manner that an interested publics can look at what the alternatives are and can examine some of the trade-offs, and I have taken part in some workshops intentionally made up of mixtures of up to 30 people from as broad an array as you can possibly get where they formulate a structure, a model actually - we put it on a computer so that we could use it consistently - a structure for comparing different issues, had to do with use of a pesticide, plantations in fact the most recent one, and then allowed them to sit and, over a period of about I suppose it was really five days if you count the whole thing, that they were causative for five days, but at the end of five days they came out with a set of what would be accepted by most managers as objectives that they could go out and work to in the field.

Now, that is a cumbersome approach to try and do it with a very large group. The principle though I think is valid; that what is missing, I believe, in the way we are approaching natural resource management is that we do not offer the alternatives, we don't look at what really are the possibilities, people choose one and become an advocate of it, and that is quite different than having everyone look at a range of

reasonably possible futures and attempt to choose one from that.

Q. Going on then in that paragraph, you write:

"Much of the planning material in this area would be better described as creative writing about the resource than as a realistic attempt to control resource development over time to achieve objectively stated values."

I had gone through the transcripts and there was some discussion about the District Land Use Guidelines and whether that sentence applied to the District Land Use Guidelines. Was that your intention?

A. No, I think more I had in mind what actually gets written into a management plan. Where there is a requirement to report on those things, it tends to be, well, creative writing because the actual interaction, although it took place and followed the format, the actual interaction with the public might have consisted of half a dozen people.

So that in terms of true trying to appreciate what was the desire of the public and integrating it, it wasn't there.

Q. You mentioned in your evidence

several times the example of having objectives and managing objectives for the non-timber value of aesthetics. Now, I would like to get into that a little bit more just to see how that would be done.

First of all, and if you can sort of describe for me and in answering how you would do that, can you also describe how difficult or costly it would be to manage for that kind of non-timber value?

A. The premise has to be that managing for timber, the implementation of a harvest schedule and a silviculture schedule, will in fact change pattern in the forest and that that changed pattern in the forest influences the other values. If that weren't true, then we wouldn't have the discussion.

So the issue to me becomes one of: How do we discover the relationship of the other values to that changing forest pattern. If it is not possible to describe, probably has to be quantitative, but some description that at least that shows a general response to that change, then it's not possible to design the harvest schedule and silviculture schedule so that it alters the impact in some desired manner on these other issues.

So the key of the thing comes down to: How do you relate whatever the other value is, moose

habitat, wildlife habitat, owl habitat to the emerging pattern in the forest as a result of the application of the harvest schedule and the silviculture schedule.

Q. Okay. But can you try to develop that specifically for the non-timber value of aesthetics?

A. Well -- of aesthetics?

Q. Yes. See, what I'm trying to get at is how difficult is it. I mean, it's been done for the timber values for wood supply and you developed objectives for that, and you have also said that that was done some 10 years and now we are moving towards and we should try to move towards where we can.

I want to get a sense of how difficult or costly that is and then use aesthetics as an example?

A. I have never tried to work with aesthetics in this context, so I'm not sure. What familiarity I have suggests that there has been a fair amount of work particularly in the Pacific northwest that has to do with the view that appears, modelling the view that a person would see as they drove along roads, and it would be awkward to characterize aesthetics quantitatively as we spoke yesterday of the painting. We could negotiate somewhere between the group of 7 and Van Gough and that kind of thing, we

could find a balance, but it would be tricky to reduce that to a quantitative measure I think right now.

Actually thinking about it, there is in existence a very thick manual called The Guidelines for Aesthetics in Timber Management in Ontario that would be about 10 years old that attempts to do that. It looks at viewscapes and the positioning of roads. So there have been some beginnings done.

Q. Okay. All right. I would like to turn now to how your model would work for non-timber values related to the use of the forest by native community.

Now, first, is it possible in your opinion to use your system to manage for social values such as maintaining one or more subsistence uses of the forest by natives communities. Is it possible, first of all?

A. I don't see any inconsistency. You mean, it's a form of harvesting?

Q. Mm-hmm.

A. Then there would be no inconsistency, that would simply -- they would enter in a harvest schedule which already includes, if you look at the average Crown unit it might have 10 or 12 separate companies or units, their activities aggregated into a

harvest schedule. So it's not unusual for a harvest schedule for a large forest of the order of a couple of hundred thousand hectares to include more than one harvester.

Q. Okay. I would like to go beyond that though, because what I'm talking about when I'm talking about native use is not simply harvesting but using the forest for their native traditional uses such as trapping, fishing, hunting and also using it in the context of providing fuelwood, perhaps small commercial uses such as providing for a small sawmill in their community.

What I'm trying to get at is: How your model could be used to manage for those kind of values that native communities seek from the forest?

A. The consumptive uses would not pose any problem, in fact they should be relatively straightforward to deal with. The issues of hunting and fishing raise precisely the issue that we spoke of yesterday in integrated management, you are talking about: How does the changes in the habitat invoked by one use, timber, alter the habitat for various game species and to the degree that you can make that relationship you can maintain the habitat and thereby the populations. The principles there are the same.

The aesthetic one is the one at present I don't see a way to deal with.

Q. Okay. What kind of information would you need to set quantifiable objectives for a native community, and I want to break it down into the three uses of the forest that I was talking about.

First of all, what kind of information would you need to set quantitative objectives for the value of traditional native harvesting of moose or of other species such as marten?

A. I suppose the minimum information that you would need is the average annual harvest level of moose or of marten.

Q. By a native community?

A. By the native community which would then become a measure, if you were doing an analysis of the population dynamics and their habitat, you would be trying to structure it so that the level -- desired level could be sustained, desired level of harvest that of those species could be sustained.

Now, you can't tell for sure that that is possible because if the harvest level is higher than is sustainable with any habitat next year you could get in trouble, but there is the possibility for direct trade-off there.

Q. But it would be critical to have that piece of information about what their annual harvest level is?

A. Average annual harvest level, yes, some estimate of it.

Q. Okay.

A. Similarly to the principle that you couldn't begin to design the timber part if you don't know roughly what the average annual consumption was of sawmills and pulp mills that were dependent on the property. The principle is similar.

Q. Okay. Another thing that native communities would want out of the forest or out of the forest ecosystem is an assurance that they get an adequate supply of potable water and, as you know, the forest, you know, when you cut down a forest you can affect adjacent waterbodies.

Can you give me some idea of how you would try and set a quantifiable objective or will you try and set a quantifiable objective to ensure that they continue to get that potable water supply?

A. We are well out of my range now, Mr. Chairman. I would -- I hesitate. It seems to me that if the issue is amount of water that you need a hydrologist to answer that question. If it's changing

the quality of the water, then you need someone who can speak to that issue as it relates to other activities, but I really can't take that one.

Q. Okay. So you can't answer then whether or not you would be able to set those quantifiable objectives without that knowledge?

A. The people that I will work with on Friday at Banff in the modeling exercise will in fact be working with water and my feeling is, yes, that those kinds of things can be done in the same sense of first approximation that we need in order to get started in any of these. But I'm not the person to ask for the exact how.

Q. Okay. In your witness statement in paragraph 9, this was something which Michelle Swenarchuk asked some questions about yesterday and I would like to follow up on that. You state that:

> "Adaptive management requires the formulation of quantitative measures, even though tentative, of non-timber uses so that testable forecasts can made, goals can be set and responses can be Measured and evaluated in terms of the goal."

And then you say:

"There's enough information available to do this."

Now, when you say that there is enough information available to do this, you are referring to setting quantitative measures for non-timber uses; is that correct, first of all?

What exactly do you mean by this when you say 'there is enough information available to do this'?

A. The point I tried to make yesterday was that when you presume -- when you manage you make presumptions about all of those connections, it's simply not possible to avoid it.

If you say you can harvest this many moose or this many cubic metres from the property, there is a presumption that that -- and say it's sustainable, if you make that claim, there is a presumption that there is knowledge of the connections between the habitat and the moose and the whole thing.

All that is at issue here is whether or not those presumptions are forced into quantitative form, however tentative, right at the front end. They do exist. If you claim to be able to manage, then there is underlying the presumption that those things exist.

I think I used an example of an ancient

invenerable allowable cut calculation that appeared not to have any assumptions in it, but which in fact contained a yield curve in each class structure and harvest schedule and silviculture schedule all embedded in that simple equation which I think said the allowable cut equals two times the growing stock divided by rotation. I found my slide, if you wanted to see that.

The same thing is true here. It isn't that we have enough information, I'm not suggesting that we could do this in a first rate manner for everything at the level that we now do it for, say, the most valued timber species anywhere in the country. I will argue strenuously, as I can, that if we don't start to try and do this, if we don't make a beginning to attempt to relate the cause and effect between the spacial pattern that would create from timber to these other things in some measurable manner, we are not going to gain control of those other things in the sense of integrating them in our management plan.

Does that come close to what you are looking for?

Q. I guess, I mean my further question would be - but I don't think you can answer it - is whether or not there is enough information to manage

for non-timber values related to native communities, but from what I gather your audit looked at, you never addressed anything at all about native communities?

A. No, but if their values are dependent on the structure in the forest, then it's an issue that needs to be addressed, yes.

Q. If you don't address it, if you leave something that could be made quantifiable in a qualitative form; i.e., you have a qualitative objective and not a quantitative object, is there some danger that that qualitative objective is not going to receive the same amount of emphasis as the quantitative objective?

A. In simplest terms, if you leave an issue in qualitative form what happens is it becomes a constraint. The only way that it can enter management is by virtue of constraining the other activities rather than by trying to manage to make gains of the value that you are trying to get.

So that there is tremendous advantage if you can get into the game on the basis that you are trading at the level of setting the objectives, rather than having the objectives set and then you enter the implementation for whatever objectives exist as a constraint.

But a qualitative objective inevitably winds up as a constraint.

MS. KLEER: Well, I think most of my other questions, Mr. Chairman, are addressed towards native communities specifically and I don't think that you are going to be able to answer them. So I'm very surprised, but I really don't have any more questions to ask that I will ask at this time.

THE CHAIRMAN: Very well. You aren't indicating in any way, Dean Baskerville, that there is anything wrong with also having constraints?

THE WITNESS: Oh heavens no. We couldn't -- our society couldn't operate without them.

THE CHAIRMAN: But there should be a mix--

THE WITNESS: Yes.

THE CHAIRMAN: --in terms of being able to proceed towards a quantitative objective?

THE WITNESS: Mm-hmm.

THE CHAIRMAN: Which inevitably will also embrace qualitative objectives along the way which, according to your last statement, will inevitably at least for the latter, end up in constraints as well?

THE WITNESS: There will always be -- well, in all of society there are all those places

where we have set prohibitions, we have set constraints because they are deemed to be necessary. The difference here is that if you set objectives you set -- you define a system state, you define a characteristic forest with a characteristic pattern that you are trying to reach and actions are designed with respect to bringing the system towards that desired state, so you are trying to close on a goal. That is what the whole concept of management is.

But what a constraint does is almost the opposite, a constraint says "don't ever do this because we do not want a system to reach a certain state. So instead of saying that you are trying to close on one, you are simply saying you are trying to prevent some from being reached.

Now, preventing reaching a certain state doesn't mean that you will in fact achieve any objective, it simply means that the system won't go to one particular state. It's a marginal approach as opposed to trying to get to what it is you really want.

THE CHAIRMAN: But you might be able to s ay the reverse, that without a constraint you would definitely not achieve the objective in some cases?

THE WITNESS: That is an interesting point. I'm not sure I agree. If in fact there was

firm commitment to an objective, then you should be able to close on it as long as it was defined. I can't think of a case where we haven't had to invoke a constraint, I guess is my problem, but I'm not sure that I agree with your statement that it's exclusive, that they have to be there. I suspect that realistically, practically you are right, sir, they do have to be there.

THE CHAIRMAN: Okay. Thank you.

Mr. Hanna, are you ready to go?

MR. HANNA: Mr. Chairman, maybe if we could just have 10 minutes. I have a number of pieces of material here that I would like to get organized, if I could.

THE CHAIRMAN: Okay. We will adjourn for 10 minutes.

---Recess taken at 9:35 a.m.

---On resuming at 9:50 a.m.

THE CHAIRMAN: Thank you. Be seated, please.

Very well, Mr. Hanna.

CROSS-EXAMINATION BY MR. HANNA:

Q. Dr. Baskerville, as sort of a guiding principle in the questions I'm going to ask you, I want to just give you an idea of where I'm coming from.

First of all, as you may or may not be aware, there has been considerable discussion within my client as to a number of the concepts you have brought forward, and I believe I can say on behalf of them that in theory your concept, we endorse much of what you are saying. What we are trying to come to grips with is how to actually put this in place, how we can actually make this a reality and how we can do that through the types of powers that this Board has in terms of terms and conditions.

So much of my questioning will be looking at how we can actually put it in place, what the implications are and what may not be dealt with by - I won't use the term model - but the general paradigm that you have brought forward in terms of adaptive management and the integration of non-timber values.

That is where I'm coming from, and I think the thing -- I can understand I think from the Board's point of view, to how we actually put this on the ground if they are persuaded that that is the way to go. So that is where I will be coming from in my questioning.

Now, as you read through some of the transcript excerpts some of your -- you have been interpreted in many different ways. One of the

interpretations has been that you are a bit of a visionary and that while what you are - I won't say preach - but what you are advocating is certainly very satisfying conceptually and theoretically, but practically it has major limitations, and in asking that question, were you not considered a visionary when you were talking about wood supply analysis in the late 70s?

THE CHAIRMAN: That is probably a hard question for a so-called visionary to answer.

MR. HANNA: Q. Were there not doubters in the late 70s when you were coming forward with your wood supply analysis approach?

A. A major problem was the same kind of discussion that we are having now, in that the approach required yield curves, age-class structures and forecasts of what a harvest schedule and silviculture schedule would look like, and clearly we don't have those already; so until we learn how to get those, we can't build the model.

And there are analogue that there was nothing there that hadn't already been overcome in -- if you read, for instance, systems engineering texts, control engineering, they went through exactly the same sorts of things; in fact, that is how I got into it,

was through meeting people like that.

I guess if I was to characterize how I felt at that time was it posed a problem for the conventional way of doing things in the traditional approach is if they weren't challenged they were at least made suspect by introducing such an idea and it -- I don't think I felt uncomfortable, nor do I now. This isn't visionary, this exists, the things we are talking about, and if I can't demonstrate to you in one place one complete set of it, I can demonstrate most of it, all of it in pieces.

The management of timber on the Columbia River would come very close to what I have talked about as adaptive management, where in fact it is being used.

THE CHAIRMAN: Without taking away, Mr. Hanna, from any of your questions. You appreciate, Dean Baskerville, that a Board like this is faced sometimes with some very practical problems; and, that is, there is an existing system in place and an existing form of management structure and although changes may well be warranted, there may be limitations on how extensive some of those changes can be, given the fact that some changes may cost a great deal and that a Board such as this, while it may have the jurisdiction to indicate in a decision what those

changes should be, it does not have the jurisdiction to fund those changes per se, that is left to the province when we are dealing with Crown land in its ultimate wisdom to come up with the funds to implement such changes, whether they are personnel changes, structural changes, ways in which they gather data, et cetera.

And so what the Board is looking for in the course of your comments, to some extent, is an idea of how some of the ideas can be integrated, to use the word, with what already exists as opposed to dismantling everything that exists in order to start again.

And I understood from your evidence earlier that you are not advocating that latter position.

THE WITNESS: Certainly not. I would suggest that if you wanted to add 10 pages to the existing timber management manual, you can do everything I have discussed here. The right 10 pages, mind you.

THE CHAIRMAN: Well, let's go back to you, Mr. Hanna.

MR. HANNA: No, that's fine, Mr. Chairman. I think the purpose of Dr. Baskerville here is to get the most information to us all and I'm quite

happy to have the Board interject. I want to get the most out of this and I think the Board does too and I have no problems at all with that.

Q. Dr. Baskerville, there is this matter of cost and I'm sure you are not in a position now to say it's going to cost this, 'x' millions of dollars or whatever. What I'm looking at at some point or other having to present evidence to this Board in terms of what might be down in the road in terms of cost.

How would you go about providing that sort of information so that this Board has some appreciation of what they might be buying into?

A. The initial steps of trying to integrate and to bring the -- the initial steps of adding the timber forecasting to the area forecasting are, as I understand it, well in hand in the Ministry, so that part is already there.

The issue of integrating the others isn't so much a matter of huge cost in data gathering, it's a substantial cost in some peoples' time, sitting down and trying to make that first approximation that gets things started and focuses the data collection.

It might involve a cost, again a small one I would say, in terms of some computing power distributed widely not centralized and so that the

people close to the resource are characterizing the resource and examining its response themselves.

The great cost in this ultimately will be that what we are talking about is geographic pattern, the pattern of stands that are going to exist on 40 some million hectares of land and that is an enormous scale. The difficulties that have come up in this discussion and in any discussion come from averaging, that when we -- in the absence of being able to say what is at what location in the forest and what is next to that location, what we do is average and we say, on average there is the right amount of moose habitat out there, it just happens that it's not in the right places.

And when we use averages we frequently don't even recognize that the average conditions, conditions that contribute to that average aren't spacially located in the manner in which they are needed, say by a moose population or deer population that needs winter cover and needs summer food. Those two need to be located within the proximity of the range of the moose, and to have them on average in a forest 60 kilometres apart won't help the moose.

The biggest cost that I see in the emergence of managing a forest resource so that you

control that temporal/ spacial pattern is the mapping, the geographic information system issue, that sooner or later to deal with any of those other issues it is the geographic pattern of the way the harvest schedule and the silviculture schedule are implemented that becomes crucial.

So the issue - I think New Brunswick faced it suddenly and dramatically - it was clear that, if I can use it as an example, it was clear by the end of 1980 that to bring the control - after a year and a half of intense analysis - to bring the control to the structure that we needed it would be necessary to have spacial control on all the stands in the entire province. And at that time that was a pretty monumental cost, it was about a million and a half dollars. Not only did you need it, but you needed it before 1987.

And the conviction of the authorities at that time was such that, in essence, the way it was described was that if you were going to put up a building, a house, we agree on a design, you are the contractor, we negotiate a little bit but I hand you the design, there is the spacial pattern that you will build for me. You go and build and when it comes time to pay I don't pay until I'm sure that what you've got

on the ground matches what we had on the plan.

That was an analogy that industry would be given a piece of forest for five years, actually on a continuing basis, but at the end of five years their contract said they would show that they had managed it to a certain state and they would have to demonstrate that they had in fact done that in order to get continuity.

Clearly that required the bookkeeping system that provided that basis. So the province swallowed the cost, it was a big cost, but the payoff - not by '87 it turned out - but the payoff certainly by '92, 10 years later is going to be tremendous.

Yes?

THE CHAIRMAN: Sorry. Are you aware of Ontario's approaches towards a geographic information system, what is going on now?

THE WITNESS: Somewhat. I have a graduate student that is working on one of the projects in the Plonski Forest and it is being implemented.

THE CHAIRMAN: Is that the type of system that you are talking about?

THE WITNESS: Exactly.

THE CHAIRMAN: So what Ontario is doing now, although it may not be as far down the road as you

would like to see it, is essentially the route to go--

THE WITNESS: Yes.

THE CHAIRMAN: --in terms of developing that kind of system.

THE WITNESS: I wouldn't even say that it wasn't as far down the road as I would like to see it. I would have panicked if Ontario had bought enough GIS equipment to do the entire, I think it's 48-million hectares, at once, that would really have been a frightening prospect.

The approach of trying it on individual units, which is the level at which it will have the most power anyhow, I think is the correct way to go.

THE CHAIRMAN: Thank you.

THE WITNESS: That to me is, in terms of cost -- the rest of it; the manpower is there, it may not be the kind of manpower you want in terms of willingness to use modern techniques, but with training the major cost is going to be in the care and feeding of a geographic information system that allows you to reflect pattern in the forest as it relates not only to harvesting timber but to harvesting moose, harvesting all the other things, aesthetics as well. And that is a large cost, not for the computer, but to get it set up and implemented.

MR. HANNA: Q. Dr. Baskerville, if I could ask you to put yourself in the position of being Assistant Deputy Minister as you were in New Brunswick and faced with this type of a question, would you feel that this is a reasonable investment, would you recommend that sort of investment to your Minister?

A. For the whole province all at once?

Q. No, no, no. I understand what you are saying about doing it incrementally, the advantage in doing that, learning so that you don't invest a large moment of money but then you have got it tied up and you may decide that isn't really the right technology you want, the move in this direction, that sort of level of investment; do you feel it's warranted?

A. Yes. If I could recall the diagram where I showed a yield curve and an age-class structure, a harvest schedule, a silviculture schedule and four possible places where a cut-over hectare could grow on -- grow to.

In trying to achieve that you have got two major problems, that was an average picture for a piece of forest. To gather that up you have to take the individual stands and add them.

THE CHAIRMAN: When you say 'average',

you mean that is an average chunk of forest or those numbers represented averages?

THE WITNESS: As a caricature it represented a forest, one working group in a forest in average context. It showed the yield curve, which was the average one for those stands, and it showed the position of all of the stands on that.

Now, to get that - the stands aren't altogether the way I showed them in the little box on the diagram, they are spread through the forest - the first thing that has to happen is somebody has to find where those are and aggregate them, so that you can make that analysis.

So there needs to be some systematic typing of the forest so that you can aggregate it back. You find a solution through such a model by examining the possible production possibilities, but when you get that solution you then have to disaggregate that back down, the harvest schedule and the silviculture schedule aren't average, when you implement them you actually gain a stand not an average.

So that the control of that system lies largely, and as it relates to the other uses, non-timber uses, substantially relates to how you disaggregate that solution.

These tools of geographic information systems are going to make all the difference in the world, it will make as much difference to forest management in the next decade as computers made in the last decade, the microcomputers made in the last decade, because they will systematize the aggregation to making the forecast and the disaggregation of the solution so that you can actually find where it is on the ground you are going to do those things.

So the question was: Would I recommend the purchase and use of such equipment, and the answer is yes.

MR. HANNA: Q. Dr. Baskerville, I was going to speak to you about GIS systems and seeing as you have brought it up, perhaps this is the appropriate time to deal with it.

MR. HANNA: Mr. Chairman, I have here copies of a paper that Dr. Baskerville prepared on GIS systems that I would like to discuss with him briefly.

(handed)

THE CHAIRMAN: I believe that is Exhibit 974.

---EXHIBIT NO. 974: Proceedings from the Geographic Information Systems Conference, entitled: Forestry GIS: The Next Step, dated March 9-11th, 1988 by Gordon L. Baskerville.

THE CHAIRMAN: Were you going to give us four, Mr. Hanna? I am sorry, I think you already did. Sorry.

MR. HANNA: Q. Dr. Baskerville, this paper was presented in March of '88?

A. That's correct.

MR. HANNA: Excuse me, Mr. Chairman that was Exhibit 974?

THE CHAIRMAN: 974. 973 we marked as the compilation of the transcripts, for those of you who didn't mark it yesterday.

MR. HANNA: Q. And I would like to look first at page 11 of this paper. This paper was presented to a forum dealing with the technology side of GIS; is that correct?

A. That's correct. It was an annual meeting of the vendors of GIS equipment primarily and of users and it was concentrated on the technology.

Q. And would it be fair to say that the basic thrust of your paper was that the technology does not necessarily give the answer, but it's a tool to help you in arriving at answers?

A. That's probably a fair characterization. There is a tendency with this, as

with most technologies, to -- imagine that if you buy one that suddenly it will solve all the problems that I just described; in fact, if you were to purchase a geographic information system, there would be some substantial investment in your own manpower learning how to operate the system so that it did -- it worked on your problem, not on the problem that the vendor happened to have tested.

And vendors have, in this area particularly, classically misunderstood the nature and the scale of the problem, and since I had an opportunity to speak to them, I opened by saying that, in fact, I wanted to announce that I had the answer but at the end of the first paragraph, saying that I do indeed have the answer, now if only I had the question, and which was the theme of the paper.

Q. On page 11 in the first full paragraph there, I think by now it's a bit of a truism for this Board; and, that is, that forest management decision-making is complex. I don't think we need to debate that. The question is: When you have got complex decisions that is really saying we have got a large number of choices.

THE CHAIRMAN: Why couldn't you have a few number of choices but the very difficult choices to

make, and it can still be rather complex as to what goes into making the choice even between a few number of alternatives. Wouldn't that be the case as well?

THE WITNESS: I'd even introduce a third alternative, that the dynamics underlying the decision can be complex and that we are then -- one of the hardest things in decision-making is to isolate the part of that where you are most vulnerable to error.

MR. HANNA: Q. Okay. And the reason I raise that is, where you have these complex decisions, is it your view that those are the problems where you require the highest level of systematic analysis; if it's a simple problem it's simply a matter of: Do I like that painting or not, which is one we have talked about before, I may may not need to go through a detailed, complex system analysis, I can arrive at that decision very easily.

A. I'm tempted to say yes, but if you were to walk into a stand in the woods and say: Should I plant this just standing here in amongst the stumps, we could say that was a simple decision and consequently didn't need any analysis and we could either plant it or not plant it, but if you think of it in the context of forest level dynamics, whether or not you plant that area should depend on what the output is

from the whole forest, what is the impact on the whole forest. If planting it in fact doesn't contribute to the objective for the whole forest, there is no reason to plant it; on the other hand, if not planting it prevents you from reaching it, so that the decision which looks simple is isn't necessarily simple.

In general I accept the question, but we might want to quibble about what you would call a simple decision and what I would call a simple decision.

Q. But even that simple decision that you are saying can be complicated, that requires systemic analysis and has this, as you say, production possibilities type of concept associated with it?

A. I would argue that it should require systematic analysis, to state that it actually does is a little different and people can make choices without systematic analysis. Part of our problem.

Q. But quantitative tools do allow you to deal with it in a more comprehensive way. Is that one of the reasons that you see these types of tools - and I'm speaking here strictly of GIS, this type of process?

A. Quantitative tools make it a little easier to be comprehensive, but their major advantage,

in my view, is that when we lay it on the table in front of the people in this room they will all be looking at exactly the same thing; whereas if I -- whatever I have said in the last day and a half, there are probably 45 different impressions of it out there.

I made some headway with the overheads that I used which were more explicit because they were quantitative. If I set a model, we operated a model of forest dynamics, then it becomes -- it does the same thing whether you run it or whether I run it, and that is the big advantage, you take some of the mind games out of it.

THE CHAIRMAN: So there is consistency?

THE WITNESS: That's right, consistency whether you operate it to look at moose and I operate it to look at timber, at least the dynamics are represented in exactly the same way, there is no body language.

MR. HANNA: Q. And GIS serves this communication role, it assists in that - how should I say - formalization of the information, so that everyone has, if you will, equal access to it?

A. It serves a role, I would say an important role in taking a nature that is highly disaggregated and allowing us to aggregate that into a

form where we can indeed lay it on a table in front of us, we could actually look at here in this group, find a solution, and then it's important to gain in the disaggregation of that solution.

How do we take this solution which says cut a hundred thousand hectares a year, how do we find which hectares we will actually harvest, how do you actually locate them spacially. Getting the answer is one thing; to actually implement it is where the crucial issue comes in terms of things like wildlife habitat.

Q. On page 11 and also on page 12, I'm looking at the third full paragraph, the last sentence it says:

"It remains to establish a comprehensive connection to the management decision-making process..."

And I believe this is the technology. And on page 12 in the second full paragraph, the third sentence it says:

"People in the decision-making process have not fully comprehended what it offers to them."

Now, my question to you is --

A. I am sorry, where was the second

sentence?

Q. I'm sorry, it's the second full paragraph in page 12.

A. Mm-hmm.

Q. The third sentence. I didn't read the clause at the beginning, I started with:

"People in the decision-making process..."

THE CHAIRMAN: I think it's the next paragraph down, Dr. Baskerville, towards the end of that.

THE WITNESS: Got it.

MR. HANNA: Q. Now, it suggests here that there is a potential that hasn't been realized yet and that there needs to be some connection between technology and the decision-making process. I'm interested in what this connection is that is lacking and how you see making that happen?

A. Remembering that I was speaking to peddlers of hardware here, there are two issues; one, the managers, the designers of management have long recognized that spacial pattern was important and have recognized it explicitly on hard copy maps when they drew lines for where a road would be and tried to calculate by hand what amount of volume would be

available to pay off such a road and similar sorts of calculations.

The capability of GIS in the system in simple things like laying out the stream reserves. The map appears on a large TV screen and you simply set -- ask a code to set a band along each stream, and if you want it to be 10 metres you say 10 metres, and on the screen will appear a 10-metre band along all of the streams, but it not only appears but you now have information in the system on exactly what kind of stands are in that 10-metre band. So you haven't just made the band, you still have all of the data that was there before is still underneath, it's a system of overlays actually.

The ability to do things like that are mind boggling to the manager, he's so used to not being able to make that calculation, to knowing that every one of those reserves takes timber out of the base for producing timber -- takes land out of the base for producing timber but not being quite sure of what was on it. Now, almost instantly you can see that.

It takes a little while for the managers to grow accustomed to having a new tool. And I just sold a car that had 334,000 kilometres on it, an old diesel, and I bought a very nice new car and I'm having

a little trouble getting accustomed to the fact that it has electric windows and things like that. I keep trying to put my hand out and I hit glass. It takes a little while to adjust to advanced technology.

On the other hand, the people who are marketing this are pushing it. As you know, New Brunswick has got one and they know what they are doing; so, you know, if you don't have one, they are not sure about you. And the sales pitch is to buy one, that it will do anything you want.

It turns out when you actually get one that somebody has to sit down and write a little program, a little computer program that says: When you touch the button marked F10, what it does is ask you how wide do you want the strip because it is about to put one of those stream reserves on. Somebody has to actually write such a program.

THE CHAIRMAN: But doesn't that assume as well that the data that's stored in the memory is inputted--

THE WITNESS: Oh, yes, assuming that --

THE CHAIRMAN: --by somebody and obviously in order to input you have to have your data available on what's on the ground in a form that you can input it?

THE WITNESS: Yes. What you could do as a starter would be for the map that you would put in could be the equivalent of FRI maps, for instance. New Brunswick actually had to do the whole thing over again, but that's another story.

The point here is that there is at this point, at this stage of development a technology which some managers are grasping, is a tremendous advantage to them for, I would say, a relatively small investment in time and money, relatively small compared to the other issues that are involved here.

The people who are marking it are pushing it without realizing what needs to be done, the adjustments to it. So I'm sure half the GIS systems that have been sold in this country, there is a disappointed buyer because you can't go and push the buttons the way the demo worked because he doesn't have that data in, because he hasn't written the little extra computer programs that will in fact attach into the main program you buy that will allow you to do all the neat things. So there is a little bit of tension right now.

Yes, this is a super tool, it is the thing we needed more than anything else to implement forest management on a spacial pattern, but it's no

panacea, there is some real work to be done to make it work.

MR. MARTEL: How long are we talking in terms of time in a province the size of Ontario?

Let us say one purchased the necessary equipment, what type of pattern of time are we talking about to put all the necessary information that you have to gather into this system so that it does the wonderful things you are talking about?

THE WITNESS: There are about eight and a half million hectares in New Brunswick and to gather the data and load it in that system so that it was fully operational took about four years and three months, a little over three years, much of that on double shift.

THE CHAIRMAN: But that was starting from scratch?

THE WITNESS: Yes, sir.

THE CHAIRMAN: And you are indicating that, in your view, Ontario wouldn't have to start from scratch?

THE WITNESS: It might not have to, although again I would want them to decide that. But your problem is at least five times larger than that, so you even need five times more people.

MR. MARTEL: But it is dependent on the staff that you have, that you could allocate to establish this data--

THE WITNESS: Yes.

MR. MARTEL: --that's required. It's not just a function of a machine, but rather the people that you have to do something.

THE WITNESS: There is a high front end cost. You have seen a cover type map, do you know what I mean by an FRI map. Somebody literally has to sit down with that map on a table and take a little piece of glass with a cross-hair in it and trace every one of those stands.

MR. MARTEL: For the whole of the province?

THE WITNESS: Yes, sir.

MR. MARTEL: What a career. We should put the lawyers on it.

THE CHAIRMAN: There is probably some lawyers that would take it on.

THE WITNESS: It can be automated somewhat, but it is -- that's part of the job that the vendors don't remind you of when they sell you the gear.

THE CHAIRMAN: So it might not be

unreasonable to suggest that it could take as long easily as 10 years to get an operational system to the point where it is really useful.

THE WITNESS: Province-wide, yes. I would suggest that units have -- I would do it by units, if it were me.

THE CHAIRMAN: All right.

THE WITNESS: That a unit that started could be up and running in five years and fully operational certainly in 10.

MR. HANNA: Q. Dr. Baskerville, are the forest industry involved in New Brunswick at all in developing GIS system or GIS databases -- not systems but the databases themselves?

A. On the land owned by industry, industry agreed that it would in fact pay for the operation on their own land and contracted, agreed to do it to exactly the same standards on exactly the same equipment. So some 20 per cent of New Brunswick was actually digitized and made available via Crown -- via industry. And I think that it is correct to say that two companies did in fact do a very large piece of Crown land as well as their own.

THE CHAIRMAN: Is New Brunswick set up though slightly differently in the sense that there is

a lot of private ownership of land as opposed to Crown land?

THE WITNESS: I think in terms of the piece of forest you are talking about here, northern Ontario, that there is a difference. New Brunswick is 50 per cent Crown, 20 per cent industrial freehold and 30 per cent small freehold roughly.

MR. HANNA: Q. On page 13, the third full paragraph, the second sentence indicates that this technology opens a whole new philosophical view of forest management.

That philosophical view, does that encompass the adaptive management and integrated resource management type of concept that you've spoken about here?

A. It would encompass -- it is a qualitative change in approach to be able to move from an average solution such as the typical forest management plan here would have that this is the allowable harvest area, to being able to say: This is the allowable harvest area where the largest cut size will be 200 hectares and it will not be adjacent to another cut-over for a shorter period of time than 10 years and a series of constraints, if you will, they will enter.

You would write them that way in order to provide habitat cover and then simply say: Find on the maps how I would do that. And there are some applications of that order emerging now already. In fact, the best one down by a company in New Brunswick where in order to -- there is a constraint that if you cut a block here (indicating) you must leave at least two five-year periods before you can cut the adjacent block, and that turns out to be a major problem if you are trying to do it by hand on maps. But with these systems, it offers real power, and that's a qualitative change in how a manager can design.

Q. On page 14, the second full paragraph, the last sentence is underlined. Does this also relate to the matter of averaging and the fact that you can go bottom up/top down and maintain consistency without the difficulties of averaging?

A. Yes, exactly. There isn't -- it is not possible to talk about a forest without having gone through and implementing something and if without having gone through mentally or otherwise a process of gathering up parts of the forest into some kind of a simpler model that you can see with your head and then getting a solution and then disaggregating that solution, and that's the central -- that's where the

power of this system lies.

Q. One last question on this article, Dr. Baskerville, and that deals with page 15, the last paragraph and it says here:

"The evolution of management philosophy with the advent of GIS has been slow."

And I'm interested in knowing why, in your view, you feel that is the case. And I am also interested in knowing if, in your view, is it prudent to get the GIS in place first and then develop your management system, develop your management system first, or do them simutaneously?

A. The reference to the slowness of evolution I think comes from seeing how long it took in New Brunswick for people to grasp, the managers to grasp what this tool could do for them, to looking at systems in Nova Scotia and in B.C. where people had bought a tool.

I think in reasonable belief that it was the right thing to do, but we are then trying to figure out: What do I do with it now that I have got it. I now have my new four-wheeler and I live in downtown Toronto: Why did I do this. And there is still some of that.

It has to do with the -- you have to grasp the significance of the technology before you can see what it can do for management, and it's not easy to grasp the significance of GIS technology. It's evolving rapidly now I think.

Q. The question about doing it simultaneously or consecutively, I'm not sure that you answered that question.

A. I'm not good at two-part questions, sorry.

Q. Sorry, I will try to make them single questions.

A. I guess in the end it has to be simultaneous. I am not convinced that you can prepare somebody, given that you are working with substantially the entire population of managers who are out there graduated before this technology existed, and the people who are in real controlling positions, you have got to provide an opportunity for them to learn about the technology as you introduce the technology.

People graduating today obviously have some awareness of it and what it can do, but it's some time -- it will be 10 years before they are far enough up in the system to have the kind of theme.

If you want to make a change, you can say

we will teach you all about GIS, and then if you are good and really learn about it, we will buy you one, or you can buy one and then see if they learn how to use it. And I find both of those fairly high risk situations; I would rather start with the commitment that we are going to get one and learn how to use it.

MR. HANNA: Mr. Chairman, I would now like to move to the National Forest Sector Strategy. I spoke to Ms. Devaul and she indicated that those exhibits were still in Thunder Bay, and I have taken the liberty of making copies for parties who may not have that exhibit here.

It doesn't have to be exhibited again because I believe it has already been entered. I believe the exhibit number is 589.

Q. Dr. Baskerville, there has been some discussion of this document before the Board in the past and I would like to get your view on it.

First of all, it's my understanding that you were involved in the development of this document; is that correct?

A. As a bit player, yes. I've chaired a session in the forum on labour and was one of the team of reviewers in the St. John meeting that led to the preparation of this particular document.

Q. Were you not a member of the task force itself?

A. I guess in the sense that all of those -- yes, but it wasn't written as a task force. This was actually a true group production more than anything else I have ever been involved in.

Q. I believe on page (v), which is the preface, it provides some background as to what led up to the National Forest Sector Strategy. I wonder if you could just briefly, from your point of view, just tell us how this came about and the significance of it?

A. As it happens, there are actually other people in the room who could do this much better than I.

Essentially, through the Canadian Council of Forestry Ministers there arose a concern to organize, structure the discussion of timber and non-timber uses and to somehow or other generally get a model, a paradigm, a description of what we wanted from Canadian forests right from industrial uses through the entire range.

Their approach was to hold a series of public -- well, invited forums to discuss labour, environment, management, and industry I think was the fourth one. These forums were about a day and a half

events at which there were structured discussions of the topic and an attempt to identify the issues. There was a group which then sifted through that and picked out issues that kept recurring or that appeared with great strength in any one of them. They subsequently put these issues together in the format of a draft strategy.

The draft strategy was reviewed at least three times, if I recall correctly, reviewed in the sense that a large group sought and had an opportunity to put blue pen on it and was revised. It was finally brought to a meeting in St. John, New Brunswick. At which meeting some 40 constituencies were represented and they are probably listed some place in here, but there were labour unions, wildlife groups, as Chairman of the Deans of Canadian Forestry Schools, I was present, a full gamut from the forestry community.

The draft strategy was presented and discussed in smaller groups and the conclusions from those smaller groups were presented to a group who reviewed them for content and then an even smaller group went away and rewrote, redrafted the strategy and the next morning at seven o'clock under your door was the next version. I was not part of the group that stayed up 'til 4:00 a.m. to do that.

On the last morning there was a discussion again with all members around the table and at the final moment the Chairman simply went to each in turn and asked each person in turn: Given that this is a strategy that's broad enough to encompass the interest of everybody in the forestry community in Canada and the generalities that are associated with that, would you be prepared to take this document back to the group you represent and recommend it to them. And he asked each of us in turn all the way around, and with only one hesitation, as I recall, one of the unions.

In the end, it left that in that forum and each of us were in fact asked - and indeed badgered if we didn't - to return to the constituency and have a discussion of it and have a report back.

There have been at least two evaluations again by the people involved originally to poll the people who were involved originally asking them: Have you changed your mind and have you done anything towards implementing this, to the best of my recollection.

THE CHAIRMAN: And was it your expectation at the time that this thing was put together that the various jurisdictions and the various

constituencies would take a look at the strategy and if they were prepared to adopt it, work towards its implementation in very different ways?

THE WITNESS: I think that certainly my view of what was possible to happen comes very close to that. I gather that in the first go-round when they asked for: What have you done to implement it, I upset some of my colleagues by replying in answer to several of the questions: Nothing, because I didn't believe that there was anything that I could do that contributed to -- you know, as an individual that contributed to such a global goal. There was no identifiable action that I had taken, but I was willing to say: Hey, I did this and it's going to fix the world.

Certainly the way it would get implemented within any jurisdiction is going to be as the jurisdiction sees fit. I mean, we have got 10 provinces, there is a reason for that.

THE CHAIRMAN: And, for example, because this has arisen, if a particular province indicated in their response that they approached integrated resource management in a form different from what you understand the concept to be, would that surprise you?

THE WITNESS: Well, no, but then when

this was written I don't think that -- for whatever the phrase integrated forest management appears, I don't mean to be trite, but it's a little bit like when Alice said to the queen: What's it mean, and the queen responded: Whatever you want it to mean. It was not a well-defined phrase.

THE CHAIRMAN: And that could apply to other elements of the strategy as well; various jurisdictions might interpret what they were doing to implement a particular element of the strategy differently from what another jurisdiction might do with respect to the same element?

THE WITNESS: I think that's a realistic view of what would happen. There were 40 groups from all 10 provinces and each, you know, was knowing what it was that they could do. I mean, you have to have the tools to do things as well as the will.

But I didn't see it as something that would cause all of Canada to suddenly become homogonized with respect to forestry, but something that would provide a cohesive superstructure to which you could identify: Here is the way our approach to forest resources fits in where we are trying to go nationally.

MR. HANNA: Q. On that same page, Dr.

Baskerville, the preface, the second paragraph.

A. Which page are we on?

Q. The preface, it is page (v). The second paragraph.

A. Mm-hmm.

Q. It indicates here there is actions expected to meet the strategic national aims, and I gather that -- well, perhaps you can just explain to me what you understood to mean those actions?

A. I can't find the actual statement here.

Q. I'm sorry, it is the second statement, the last line actually in that second paragraph.

A. Second paragraph on...?

Q. The second paragraph in the preface and it says -- the sentence starts with:

"Is a guide..."

A. Okay, mm-hmm.

If you read the document you will find that there are no actions specified in the sense that, you know, you or I would say: Yes, this is what I have got to do, but there is certainly some guides offered as to the kinds of actions that would lead towards achieving the strategic goals.

What happened - and there are other people again who would be better equipped to answer, to deal with this - what actually happened was that the the constituencies, plural, were polled I guess a little -- about a year, and then again in the second year to say: What particular actions have you taken. In essence it was a questionnaire, but it allowed either lots of room to write and it asked for a suggestion of actions that had been taken towards meeting those strategic goals.

Q. I am still unclear about what you mean by the strategic goals, Dr. Baskerville. Throughout the strategy, and the Board has seen the format of the strategy in terms of its discussion and then its specific recommendation, but is that what you mean by these goals?

A. Strategic goals as listed, as expressed in the recommendations would be the simplest way.

Q. And they are a summary of the individual recommendations that are scattered throughout the text with respect to specific discussions?

A. Mm-hmm.

Q. Now, recognizing, as you said, the

broad scope of this and whatever, are there other strategies of this nature that are designed as providing the sort of direction within the country that you are aware of?

A. I'm not sure I understand. Other strategies in forestry or...?

Q. Yes. There has been a suggestion that there may be other strategies like this, this is just one of many strategies.

Are you aware of similar strategies such as this or was the intention of this to provide - how should I say - a meeting of the minds, some sort of common direction for the parties?

A. I'm not aware of a contemporary overview at the national level that is similar to this in forestry, but I'm not sure if that answers the question or not.

Q. No, that's fine. Now, on (vi), the last sentence or the last paragraph indicates this was the first time that this sort of an exercise was undertaken to try to bring together peoples' minds and develop sort of a common understanding of where we are going. I read that as having some significance, some value.

What value do you see in the National

Forest Sector Strategy?

A. It offers a framework for discussion between groups that weren't accustomed to having discussions. In a very personal sense, I don't think that I went into this with what would be called a very healthy attitudes towards labour. The first thing I got to do was chair a session in which Jack Munro was one of the people in the fore, I acquired a healthy respect quite rapidly.

MR. MARTEL: By intimidation?

THE WITNESS: No, actually not at all. It was -- that was part of the experience that I found, I've had a lot of contact with him since then and all of it essentially good from my point of view.

I think that the opportunity to sit at a table that large with 40 some groups actually represented and hear labour and nature federations and the whole thing express interests and see a real live person, rather than a head on a TV set, to be involved over a period of -- well, many days if you count the forums with those people in smaller groups of 10 or 15 discussing issues, built some bridges.

And I would say that for me that that was the principal value that I would see. I think the most important issue would be -- from that was that I

established a bunch of connections that I didn't have before to different philosophies of what's important in the forests.

MR. HANNA: Q. I certainly appreciate what you said in terms of the significance of it to you in terms as an individual. I am looking and trying to understand if this strategy has any significance to the types of problems or types of issues that we are spending the amount of time and effort that we are in Ontario at the present time.

Does this have any relevance to those sort of considerations, or is this basically just another piece of paper?

A. If you are looking for relevance down to what happens on a few hectares someplace, no. I mean, it is an overview. It says it's a national forest strategy, an overview, a philosophic overview of the potential from forests from a very wide variety of perspectives. But in terms of prescribing, I don't think it ever intended to prescribe and it does not, in my view, prescribe.

Q. When you say 'prescribe', you are talking about prescribe now in terms of dealing with individual pieces of land; is that what you mean by prescription?

A. Yes.

Q. Okay, I appreciate that. I'm looking at it more from the point of view of the planning system. Does this provide a guidance in terms of how one should view and deal with developing forest management planning systems?

A. Probably not. It doesn't provide a guide to do those things. For a person who reads it, he might in fact change his views on how he approached it, but in terms of offering it here as a step-by-step guide for you now to consider all of these things, I don't think it attempted to do that; it attempted to suggest the kinds of things that a prudent manager would consider in designing management.

Q. Okay. In answering that question you are saying this shouldn't be seen as something to replace, for example, the Timber Management Planning Manual?

A. My God no.

Q. Right. So it doesn't provide that level of direction in terms of how to go about the management?

A. There is nothing in my recollection in this document that comes remotely close to identifying the dynamics of any resource system

quantitatively with an input and an output, so it is not a management document, it is a strategy document.

Q. Okay. And in the strategy does it discuss the type of paradigm shift that you were talking about yesterday in terms of moving from a constraint approach to objectives, the need for quantitative approaches, that type of discussion?

And to be specific you can look at page 5 which is the section dealing with the forest and its management and the specific recommendations that flow out of that in terms of the need for objectives in concrete and clear terms, et cetera, et cetera?

A. There was discussion in -- at all stages of the need to get a more structured approach to forest management, a more structured approach in the sense that instead of claiming to have delivered more than timber that you could offer some evidence of delivery. But without going back and reading this, I can't recall whether it actually says move away from constraints and move towards objectives, but certainly that kind of discussion occurred.

Q. Well, perhaps -- I'm not going to go through this in infinite detail at this time, but perhaps just a few examples just to see if I am interpreting this properly with respect to the evidence

you have given so far.

I am looking on page 5 at paragraph 5. It indicates there - I believe you actually spoke about sustainable development yesterday - and it indicates here that:

"Management activities require objectives in clear and measureable terms."

It seems very similar to the sort of things you were talking about.

A. Yes.

Q. It also indicates in that that in terms of management one must look at the stream of benefits coming from the forest in a comprehensive way?

A. Yes.

Q. And that's similar sort of views that you've brought forward before this Board?

A. Yes.

Q. Without going through this is infinite detail, is it fair to say that the paradigm shift that you've talked about, that you've advocated before this Board, is it captured also in this strategy or does this strategy contradict?

I am speaking now - and be very specific here - I am speaking with respect to forest and its management. I realize there is other sections to it,

but I'm speaking specifically to the forest and its management.

Is the paradigm shift that you are suggesting, if you will, endorsed by this strategy, at least parts of it?

A. There is no inconsistency between the two. If there is a difference it would be -- my concern is that we make these things explicit in a form so that instead of saying we will have sustainable development, we say development of what, in what ways, where, later/now.

So that what's said here is entirely consistent with the notion of managing for many things simultaneously on one property and of doing that in a manner that allows you to in fact assess your progress towards whatever goal you have chosen, but it stops well short of prescribing how that might be done, which is really what I have addressed yesterday.

THE CHAIRMAN: Mr. Hanna, with that last statement of Dean Baskerville, I think that capsulizes how he feels his views on adaptive management, et cetera, are not inconsistent with the strategy.

I am not sure that we are going to gain a lot of benefit going through the strategy page by page, paragraph by paragraph at this point.

MR. FREIDIN: Mr. Chairman, for my benefit and maybe for others, could Dean Baskerville describe what he means by a paradigm shift or what he and Mr. Hanna are talking about when they use that phrase?

MR. HANNA: Mr. Chairman, I was using his words, so perhaps I was going on what Dr. Baskerville says, so he is probably the best person to indicate what he meant by that.

THE WITNESS: At any point in time we have in our society a collective wisdom about what is and how it works and that exists in forest management as it would with any other issue in our society. And that kind of collective wisdom of where we are and how we operate has been called a paradigm of what we are or what we can be.

And the shift idea is simply a matter of the philosophy starts to change more rapidly. Instead of evolving, the philosophy of forest management I would say in the last 10 years has gone through a paradigm shift in what it was in 1979 and what it is in 1989 are different by a greater degree than was the 1979 philosophy from all of the time before that; that the change that has occurred and what would be accepted as the conventional approach in that last 10 years

exceeds all of the change before that. And that's to me a paradigm shift.

THE CHAIRMAN: So to have a paradigm shift you really have to look at the magnitude of the change?

THE WITNESS: Exactly.

MR. HANNA: Q. My understanding of part of that paradigm shift was this move from an objective -- from a constraint to an objective approach, it is a different way of looking at the potentials that the forest offers to us. Is that part of that paradigm you are referring to?

A. It may become part of it. I would not go so far as to say it is already. The things, the shift that has been dramatic has been in our comprehension of the dynamics in a forest and in a stand and our ability to characterize those and work with them in a designed form.

Q. And to take the paradigm to its fullest extent then would be to take that subsequent step and to not only look at the dynamics within the forest in terms of trees but those other forest benefits that are affected by that?

A. Yes. I think that the awareness of non-timber values has increased in the same magnitude

in the last 10 years as has the technical capability in the industry. For all of those who aren't inert, you would have to be carried pretty deeply not to have been affected by the events of the last decade.

THE CHAIRMAN: Mr. Hanna, I think we are going to take a break at this time and return for another hour before the lunch break, so we will return at 11:30. Thank you.

---Recess taken at 11:10 a.m.

---On resuming at 11:35 a.m.

THE CHAIRMAN: Thank you. Be seated, please.

MR. HANNA: Q. Dr. Baskerville, I think we are finished with the National Forest Sector Strategy, so you can put that away.

Yesterday you mentioned a gentleman by the name of Jack Ward Thomas. Do you recall that?

A. Yes.

Q. You are familiar with this gentleman, I gather?

A. Yes.

THE CHAIRMAN: I think you have to push the button.

THE WITNESS: I haven't adjusted to this high-tech.

THE CHAIRMAN: It is our rudimentary GIS system.

THE WITNESS: Jack Ward Thomas works for the United States Forest Service at La Grande, Oregon and his background is wildlife management particularly relating to habitat management. His book on the habitat management in the Blue Mountains of Oregon is, I think, probably considered the classic in how to handle the arrangement of timber harvesting so that it fits with habitat requirements for a group of wildlife species.

Q. Has he played a role in any way in the work that you have been involved with in New Brunswick?

A. The answer is yes. A group of us met him at a meeting in Vancouver, we were sufficiently impressed that we arranged to have graduate students work with him for a period of two or three months as part of their program, and then subsequently had him come to New Brunswick for a couple of weeks, I suppose as a disciple, to explain and discuss with us some of his approaches.

I have kept in contact with him since that. He was also with me when we made the presentation to the Parliamentary Committee on

Environment and Forestry with respect to wildlife habitat. I don't see him monthly, but I would talk to him probably annually and I read most of what he writes.

MR. HANNA: Mr. Chairman, I would like to discuss with Dr. Baskerville a paper by Jack Ward Thomas. I provided it to Dr. Baskerville yesterday and I believe he is familiar with it.

THE CHAIRMAN: Have any of the other parties received a copy as well?

MR. HANNA: I am about to distribute them now, Mr. Chairman.

THE CHAIRMAN: Okay.

MR. HANNA: (handed)

THE CHAIRMAN: Exhibit 975.

---EXHIBIT NO. 975: Paper entitled: Wildlife in Managed Forests - A Matter of Commitment, authored by Jack Ward Thomas.

MR. HANNA: Q. Now, when I read this paper I was given the impression that Dr. Thomas is also convinced that using constraint is not a productive way to manage forests and wildlife together. Is that a fair assessment of his position?

A. I think if you want to look at his writings at large you would come to that conclusion,

that he has worked actively to structure the forest so that it suits elk and another, I can't think, 11 other groups of species in the Blue Mountains, and to use constraints where necessary, but primarily to in fact aim at building the kind of habitat that the species guilds need.

Q. And has he been successful in actually putting this on the ground?

A. From published papers I would conclude, yes, that it is successful in the sense that the timber harvest appears to be sustained while, at the same time, we are not just meeting the requirements of elk but maintaining habitat that keeps an elk population at a level that allows a certain harvest of elk because the harvest of elk is almost as important as the harvest of timber economically in that particular area.

Q. Now, in this particular paper -- or perhaps just one thing before I deal with the paper. My understanding is this paper was one of the preparations that led up to the National Forest Sector Strategy; is that correct, it is part of one of those forums that are referred to in the National Forest Sector Strategy?

A. I believe that's correct, yes.

Q. Now, in the abstract on page 383, he indicates here that in order to incorporate wildlife in the forest that there is going to be a cost involved and I think he puts his finger very clearly on the issue of who is going to bear these costs. I presume that you agree with that, that there will be some costs associated with this potentially?

A. Yes.

Q. How do you see reconciling the cost implications - and obviously this has I'm sure concerns to the forest industry and to the public and all of the parties that are involved in this - how, in your view, would be a reasonable way to deal with the cost implications and the distribution of those among the parties?

A. The question of cost becomes paramount because that's the thing we confront first.

I would - if you, Mr. Chairman, would allow - remind you that yesterday I argued that while there was a cost in managing, there is also a cost in not managing, and the cost in not managing we conveniently defer for someone else to bear; consequently, it seldom enters the equation.

Who bears the cost and who gets the benefits, is that the sort of thing...?

Q. Certainly. I think this comes really to the nub of the problem, that we are faced with certain groups wanting something to happen and other groups obviously facing potential costs, and how do we reconcile that?

A. If I could use an anecdote to start, I once worked with a couple of wildlife people trying to install a system that would maintain deer yards on a particular piece of forest land and maintain them, actually harvest in them so that they were maintained in the same locality, so that there was going to be a structured approach to it.

The difficulty of course was that anything that deviates from the normal pattern of the harvest is instantly detectable as a cost per dollar cubic metre of wood produced. In fact, something that added three or four cents per cubic metre, certainly a nickel per cubic metre would be detectable in logging costs.

So that these kinds of changes, minor adjustments to the logging operation that looked trivial to the person who doesn't actually see the cost numbers are instantly detectable on the other side because the cost of delivered wood is probably the most stringently controlled variable in the pulp and paper

industry.

In any event, what was happening was that the cost was instantly identifiable as three cents per cubic metre and the benefit was not identifiable. And I got into quite a long discussion in the end with the chief executive officer of the company who was very active and who we were trying to convince that a deer was worth $35,000 and some odd cents, which we had calculated -- which the wildlife people had calculated from looking at outfitters' fees and clothing fees, special -- all the things that a hunter buys.

In the end in frustration the CEO said: Stop trying to tell me what a deer is worth, it's a dumb argument to have, tell me how many more I will get, tell me how many more successful hunter days anually there will be on that piece of property if I absorb this three cents. Don't try to argue with me what a deer is worth because we will never agree on that, but I can readily trade off 20 more successful hunter days a year with three cents a cubic metre, that's not a problem for me.

The issue here I think really comes to the fact that the costs are instantly recognized. Whenever we talk about management one of the first issues that comes up is cost. Somebody says: How much

does a GIS cost, how much does it cost to implement it, how much does a computer cost, how much does it cost to reserve a deer yard.

When you ask: What's the benefit of those things, then we have to get into a long discussion about how many deer there will be more if we keep the deer yard than there would be if we didn't, and you are arguing that against three cents a cubic metre. I mean, there it is, that's what it's going to do to us.

That's a very difficult argument to make particularly if all you are arguing is that for three cents a cubic metre you will have more. And he said: Well, how much have I got now? Well, we are not sure, but you will have more if you spend three cents a cubic metre.

It becomes tractable to have that discussion when you say, as in this case the biologists finally did, that the deer population expectations on that watershed would be at this level without maintenance of the deer yard and by absorbing the cost of maintaining the deer yards the deer population would be at a substantially higher level; consequently, the hunter success.

Now, what I am doing obviously is I'm not

talking about costs, I am talking about costs relative to the benefits because that's really what it comes down to. We isolate costs but it is -- they become relevant only in the context of what we will get.

There are costs of changing traditional management systems or conventional management systems in order to get other benefits, and what we need is - the characterization of those costs will be immediate and to the penny in most cases - what we need is a characterization of the benefits that allow someone to say: Yes, that's worth buying at that price.

I'm not sure that I have answered the question in the manner that you posed it, Mr. Hanna.

Q. Well, that's fine. I think perhaps I will take it one step further; and, that is, what I am hearing you say is: Let's put out what's at stake clearly on the table. It may not be in the same terms, we may be talking about deer in one case and dollars per cunit delivered wood in another case. Put those out on the table and then basically go through your public negotiation process or ultimately that decision-maker, whoever that might be, to make that decision, but put it out clearly on the table.

A. Yes, but if you do that without at the same time making it clear who bears the cost and

who gets the benefits, you have still got a problem.

The difficulty in the instance I described was that who bore the costs was -- the costs were immediately evident and who bore them was also evident, and what the CEO was concerned about was what he would tell his board of directors.

And in the end, because the benefits didn't come direct back to the company, his way around that was to say that: I will have in the annual report some really nice colour pictures of deer in our watershed and I will tell the board of directors that they bought those pictures for three cents a cubic metre and he felt perfectly comfortable doing that.

Q. So not only do you have to put what's on the table clearly but you also have to say who is going to which piece of that, or who is going to bear in particularly costs, wildlife costs and benefits.

A. Yes. I mean, if the person who bears the cost or the agency that bears the cost is not the same one as who gets the benefits, someplace there there has to be a trade-off or the guy who is bearing the costs is going to back down, and it's all of us, whether we are individuals or agencies, live on a budget and we are going to make the most effective use of that that we can.

Q. On page 383 in the right-hand column, the first full paragraph, the last sentence it indicates that:

"There has been in the U.S. at least an erosion of credibility of the foresters."

And I'm wondering if you see a similar type of potential in Canada, and I will ask the other part of the question after you answer that.

A. The answer would have to be yes.

Q. And how do you see avoiding -- I expect that you will agree with me that such an erosion is something to be avoided?

A. Yes.

Q. How do you see avoiding that erosion?

A. The most important step to gaining and retaining credibility is to keep a consistency between the goals that you announce and your ability to deliver those goals. A person who delivers -- who offers high goals but can't deliver them doesn't retain credibility very long.

So it comes back to my argument yesterday that if you want credibility in the long run you better have a cause/effect connection between the levers you want to use and the output of the system that you are controlling.

THE CHAIRMAN: But you also need reasonable goals, ones that are capable of being delivered, period?

THE WITNESS: Reasonable and acceptable, sir. I think in the case where you are managing a public property, they not only have to be reasonable in the biological production context, but they have to be reasonable with respect to the owners of the property and consistent simultaneously with the ability -- cause/ effect ability to deliver them.

MR. HANNA: Q. Looking at the last paragraph on 383 there's a statement here that:

"All parts of the forest are wildlife habitat, thus basically all forest management activities will, therefore, affect wildlife."

And I'm trying to reconcile that statement with the concept of areas of concern. You are familiar with the areas of concern approach?

A. Yes.

Q. Does this not suggest that impacts on wildlife can occur throughout the area of the forest and not just areas of concern; in other words, you can't define a specific area that will have an impact on wildlife but the whole forest is going to be

wildlife habitat?

A. I think since the animals and birds move freely, clearly the part of the forest that is within their normal range of movement is part of their habitat.

THE CHAIRMAN: But would you not agree that certain parts of the forest, vis-a-vis habitat, could be more sensitive than others and there can be others which, if disturbed, which if impacted upon by other activities would cause far greater problems to the particular specie than other areas of lesser concern?

THE WITNESS: This is an excellent paraphrase of what my next sentence would have been and that is spot on, that a deer yard is just a piece of territory to us and a stand to the timber manager, but to the deer it's an essential piece of his survival or the population's survival.

Consequently, if you did a sensitivity analysis in the sense that I showed yesterday, that would appear as a highly sensitive area in terms of managing something that we should know about and know how to control. So that while all of the forest is habitat, not all of it is equal.

THE CHAIRMAN: And, therefore, does it

not follow from that that the method of addressing the impacts in terms of what is required can also vary in degree. In other words, you'd obviously try and treat the more sensitive areas differently and more stringently in terms of alleviating, minimizing or mitigating the impacts than you would a less sensitive area which would not affect the species in a particularly negative way?

THE WITNESS: I would agree with that, that the tendency of a prudent manager would be to structure his actions so that he had the least chance of making a grievous error and that would tend to focus on those kinds of things.

THE CHAIRMAN: Okay. Just to follow through with one last concept. And would you agree that you do that perhaps, if for no other reason - and there may be a lot of other reasons - because you have limited resources and you can't spread those resources everywhere, you have to concentrate the resources in some fashion because the land area you are dealing with, or the forest that you are dealing with is just too vast in magnitude to do everything that you would like to do in every particular spot, so obviously you have to pick and choose and somehow priorize what your management activities are going to be?

THE WITNESS: The notion that we can't possibly do everything that we would like -- think would be the right thing to do in all places is one that you should keep high in your mind because that is fact. We couldn't afford it and society wouldn't be willing to bear the costs, nor could we probably identify necessary benefits.

So the question becomes: For the budget that we have got, how can we manage so that we achieve the timber we want with a balance of the other uses that is within acceptable range and what are the places where we could get in trouble where we would default on delivering that.

There is an analogue on the timber side - I think it's an analogue - in things like prime site where the suggestion is that you can get much more payoff by concentrating effort on a smaller part of the forest rather than dispersing it through all of the forest and it happens to be the other way around from the example you have chose, but it's an analogue in the sense that you are managing to get the most for the amount of money that you have got with the least risk of grievous failure.

THE CHAIRMAN: Okay. And would you suggest, if you know and you may not know, that

Ontario's area of concern methodology is an attempt to do that. Is that an acceptable approach in your view?

THE WITNESS: Is the Ontario approach acceptable or is an approach to areas of concern in a generic sense?

THE CHAIRMAN: Well, let's take it firstly in a generic sense. Is that a way of addressing what we have been discussing?

THE WITNESS: To initiate management obviously using constraints to eliminate some conditions that you don't want to encounter is a reasonable way to start. So that in principle, the idea of areas of concern doesn't trouble me very much.

The issue becomes: Are they correctly identified in terms of the dynamics that we are trying to protect, species dynamics, population dynamics, are they correctly identified in spacial location relative to the populations.

THE CHAIRMAN: So that all goes to: Have you identified the area of concern properly and if you have identified it, is what you are trying to accomplish within that area of concern properly addressed or carried out?

THE WITNESS: Yes.

THE CHAIRMAN: Is that the second part of

what you are saying?

THE WITNESS: Yes, I would agree to that. I don't know if you sail or not, but if you are sailing and you look at a chart, the first thing you look for are the shoals so that you don't go there, and I think that that is not a bad analogue for this, is what we are looking for are places where you could founder badly, and begin to design management so that at minimum you keep options open there.

And the risk of foreclosing options when you initiate management is fairly high. The first few steps you take, if you are not thoughtful, then you make a big difference.

So the concept of areas of concern as a place and a location in the forest, geographic place where, if I made an error in my treatment I could in fact inflict a major problem with meeting my objectives, I have no difficulty with. In effect, I'm saying that until I learn how to manage those areas directly and positively to promote the species, I'm going to try to prevent loss, loss of an option to do so.

MR. HANNA: Q. Dr. Baskerville, there are several points that arose there. First of all, I'm hearing what you are saying that because areas of

concern have specific value and the risk in management of foreclosing options that, therefore, you want to remain -- leave those options as long as possible and that is the rationale for your endorsement of the area of concern approach?

A. Yes, I think that's correct.

Q. Now, you also made reference to the prime site as an analogy in timber supply. They are more important, you can produce more of some of the timber resource and, therefore, they would receive greater attention?

A. In any system there will be areas where you can either reduce the risk of failure or enhance the probability of success by treating them differentially, and a prudent manager will seek to identify those early.

Q. Okay. The difference that I see between those two analogies, with the prime sites it's primarily determined by, if you will, fixed features of the land; in other words, the soil, drainage, location indication?

A. It's also determined by where we build roads.

Q. Fine. But those are, if you will, constant over time. I'm thinking spacially and

temporally in the terms you have spoken of.

A. Mm-hmm.

Q. Now, with something like a deer yard there is the potential for that in a spacial and temporal terms, particularly temporal terms to not be static: What today might be a deer yard tomorrow might be a summer range?

A. Yes. If you've got a deer yard, it at least become potential summer range. I'm not -- I'm pressing the limits here again, Mr. Chairman, but my understanding is that deer habituate to a locality as a wintering area and there is even evidence that if you clearcut it they go back, even though there isn't any cover there or canopy, some can go back.

So there is something more than just having available, and I tried to make this point yesterday perhaps not clearly enough, that it isn't just providing the kind of stands that, mensurationally in terms of the way that I would describe a forest, look like a deer yard but they have to be seen by the deer as a deer yard. And that is the essence of this. You know, to say that you have provided stands that have the canopy characteristics and everything else of a deer yard but which the deer say it lacks something, is a problem.

So that I agree with what you said if you will allow the extent that you can't just say because there is another stand of similar characteristics someplace else the deer will go and find it, they won't necessarily, as I understand it.

THE CHAIRMAN: But isn't that how any value is identified in the forest setting, somebody has to notice it and/or identify it and there has to usually be some imperical evidence that that is so. So if you are going to find a deer yard, it's not just as you say providing the habitat, it's somebody saying we have observed or a wildlife biologist, we have observed that deer habituate this area with these characteristics and, therefore, it's a deer yard.

And the same thing for any kind of value out there, if it's a rare plant it may exist, but if nobody knows about it it's very difficult to try and protect it specifically until it's brought to somebody's attention and, therefore, prescriptions or action can be taken to mitigate what might be detrimental environmental impact.

Would that not be the case?

THE WITNESS: Yes, I agree. To use the deer yard example there's a fairly high risk, I believe in answering one of your questions yesterday, Mrs.

Koven, I referred to this sort of possibility, that if we maintained all of the current deer yards and cut around them sooner or later they are going to fall down and trees get old and die and where do the deer go then, because now we have eliminated everything.

We could meet all of the constraints and comfortably run a population to extinction, we actually did this in a model. If you left only the existing deer yards. It's got to be obvious that the deer do in fact, when deer yard is breaking up in nature, go someplace else, and somebody better be finding out what it is -- how they make that decision, how do the deer decide which of the other available stands will be a deer yard, so that we can make available continously in time and space the amount of deer yard that is needed to sustain a herd.

Simply protecting what they currently use on the base of it will not be adequate, there has to be some active step beyond that, because those trees will in fact grow old, die and fall down and no longer be deer yard.

MR. HANNA: Q. Dr. Baskerville, that was the point of my question and I guess what I'm saying is with just the AOC approach; in other words, just dealing with the individual deer yard and not taking

that comprehensive view of the other dynamics within the forest, when that stand breaks up one can end up in a very difficult position because it may take 50 years for you to develop that habitat requirement that the deer may be requiring?

A. I agree.

Q. Now, given that you say the AOC approach, the area of concern approach is reasonable, do you see it reasonable and adequate in a comprehensive way, is it enough in itself?

A. I guess in answer to the question posed by the Chairman I said that it was a reasonable place to start because you were -- the most important, I would say certainly one of the top couple of priorities in resource management is to avoid option foreclosure, don't do something in your first step that you can't recover from thereafter; and removing a deer yard in an area of concern could in fact be such a thing.

So that to begin by identifying them, yes, so that you keep open the option of managing and to see why the deer are there.

I think I made the point yesterday, I hope, that I would move immediately from that to find out how do we find out why the deer are there and what

do we need to provide for them elsewhere.

THE CHAIRMAN: And is that accomplished by various wildlife studies long-term, over time studies.

THE WITNESS: I'm aware of one in Canada that is of a scale that I think has a reasonable chance of doing that. It's a joint industry/university/ natural sciences and Engineering Research Council project on Vancouver Island, and to put it in perspective, to discover, have a reasonable chance of discovering why deer like some stands more than other stands they are spending, on a partnership basis, about equal proportions, something of the neighbourhood of 500- or $600,000 a year. It's a substantial expenditure over six years.

MR. MARTEL: Once you have established the areas of concern, let's say in a whole unit, and they are just isolated for the time being--

MR. COSMAN: Sorry, Mr. Martel.

MR. MARTEL: Pardon me. Once you have established areas of concern for a particular unit, you are saying it's not good enough then just to leave them, that you have got to watch from various studies what in fact transpires over the next number of years with respect to those AOCs; in other words, you are not

going to lock them in in perpetuity if you can discover or learn how something will accommodate itself with something else? In other words, you just can't leave them.

THE WITNESS: I want to waffle a little, if I could, Mr. Martel.

MR. MARTEL: I know about them.

THE CHAIRMAN: You used to know about them.

THE WITNESS: It strikes me that if we think about it that there will be areas of concern, lets say, a stream bank that is in danger of erosion where you want the permanent situation and where in fact your management will be to try and keep a stand of trees on it all the time to keep the stability, is that...

MR. MARTEL: Yes.

THE WITNESS: Okay. What I'm suggesting is that there are some other areas of concern like deer yards which, in terms of nature, actually migrate around the forest and it's the deer that are making the choice and we best find out how they are making the choice if we want to ensure that there is sufficient deer yard for them, because simply by holding the ones that exist now we almost ensure that they are going to

run out of deer yard at some point in future.

MR. MARTEL: So that in effect there are two types?

THE WITNESS: Two types, that was my waffle.

MR. MARTEL: Okay, thanks.

MR. HANNA: Q. Dr. Baskerville, within the concept of the habitat supply analysis approach - I'm going to deal with that in detail but not right at this particular moment - but I want to just clarify this with respect to what you said in terms of areas of concern.

The area of concern, as you have laid it out, is perfectly compatible with the idea of looking at a supply of habitat for wildlife over time and that the current sensitive habitat types that we know of could be recognized in that process?

A. That identification of areas of concern is compatible with a forecast of dynamic availability of habitat. Is that what you are saying?

Q. The area of concern says, and the habitat supply analysis approach - which we will get into - says: Here are the key habitat features that we want to provide now and into the future.

A. Mm-hmm.

Q. Take the analogy you have done with the deer yard, the temporal profile for the next 20 years, that deer yard may satisfy that essential habitat requirement on a piece of land so that in that way it can be dealt with, in fact it would be dealt with in that type of supply analysis, habitat supply analysis?

A. Okay. I think it's what we were just discussing, that if I were to start I would begin by looking for places where I might plunder into option foreclosure, and I would call those areas of concern and set them aside, proceed with my habitat supply analysis and build those back in as rapidly as I could.

THE CHAIRMAN: And then as you got the information from the habitat supply analysis, that would enable you in future plans to better identify which other areas should be protected?

THE WITNESS: Exactly.

THE CHAIRMAN: So it's sort of a continuum and it improves the management as the knowledge base increases?

THE WITNESS: Mm-hmm. A mathematician who is trying to do that calls it the method of successive approximation, and if you don't mind that kind of a phrase, that is exactly what you have

described and that is what we should be doing; successively coming closer to getting the answer but not suggesting ever - when a mathematician uses that he's already conceded that he can't get the answer - that the number may be a transcendental number that doesn't exist, so what he is saying is, I can get closer and I am going to keep trying.

THE CHAIRMAN: And that is probably a reasonable approach in management of nature anyways, you are never going to get a hundred per cent perfection; are you?

THE WITNESS: I agree, because we will never fully comprehend--

THE CHAIRMAN: Understand.

THE WITNESS: --the dynamics of nature.

MR. HANNA: Q. In your discussion of area of concern you mentioned the stream bank example where it was a fixed feature in terms of temporally and spacially over time the stream, at least over the time horizons that we are looking at, isn't going to change?

A. Yes.

Q. In that particular case, the fixed area of concern; in other words, you don't have to look at dynamics in the same way in terms of being comprehensively at the land base. Would you agree with

that?

A. Well, the example I chose I think you would because if in fact the intent is to maintain vegetation on a stream bank in order to prevent erosion then you need to look at least at the local dynamics to ensure that the stand is -- there is always an integral plant community on that piece of ground. But in terms of the whole context of a large property, no.

Q. But that piece of ground -- you would always be concentrating on that piece of ground because of its proximity to the stream?

A. Yes.

Q. Back to Dr. Thomas' article. On page 384 in the third paragraph on the left-hand side, I believe he's talking about the difficulties that the constraint approach can lead to and the fact that they can lead to a lot of frustration, failure and conflict between foresters and biologists.

Now, in your view, is the potential for this conflict sufficiently significant to warrant the type of change that is being advocated in terms of objectives?

A. The conflict that arises in arguing about where a constraint gets set; is it 60 feet, 10 metres, 20 metres, 25, 35, 40, where should it be, is

largely counterproductive. What it does is cause people to argue from positions rather than to address what it is they are trying to protect, and the issue really should be not how wide is the thing, but what are the dynamics we are trying to protect; and then, given that, how far do we have to go out in order to ensure the integrity of it.

THE CHAIRMAN: But isn't that sort of the end of the process even if you don't admit it, in other words --

THE WITNESS: The setting of one?

THE CHAIRMAN: That's right.

THE WITNESS: Yes, quite frequently there will be, as I agreed earlier this morning, situations where a constraint is essential. I think what Thomas is suggesting here is that the approach that he encountered when he first went to this area, which was entirely constraint oriented, had everybody from the town community hall arguing the outcome of this, the sheep ranchers and the timber harvesters had to be kept in opposite corners of the building to hear him describe it, because what they were looking for was to simply -- they would have divided the area up and said: This part's for me, this part's for you and we don't don't go back and forth.

Whereas in fact what emerged was a process by which the whole forest was accessible to all three with some limitations on the ranchers who had to be careful about how they interacted with the elk in terms of range. And that that was the prescription that he is speaking to here, that if you simply take solely a constraint approach you will wind up in argument about why, why this constraint and why this not.

THE CHAIRMAN: Well, would you not agree that some competing objectives are incompatible amongst various stakeholders such as the wildnerness buff or the remote tourist operator that doesn't want any activity that is going to interfere with that?

THE WITNESS: Yes.

THE CHAIRMAN: And it's basically stay out of my piece.

THE WITNESS: Mm-hmm.

THE CHAIRMAN: Because anything you do in my piece is incompatible with my objective.

THE WITNESS: I accept that that occurs and hope that you would agree that that is a total departure from integrated management, we have now decided to isolate one use and say that is where we will do that, and there will be cases where that will

be necessary.

THE CHAIRMAN: But would you also agree that you can't have that particular use that you are isolating if it's not isolated. If isolation --

THE WITNESS: Yes.

THE CHAIRMAN: --is the essential element of the use.

THE WITNESS: Well, wildnerness is the good example, yes.

THE CHAIRMAN: You can't have wilderness if you have all other kindms of activity that is incompatible with the concept of wildnerness?

THE WITNESS: No. I don't think there is grounds to disagree with that. The issue is going to become how much and where.

THE CHAIRMAN: Right.

MR. HANNA: Q. But there are others, Dr. Baskerville, other uses that are potentially compatible, much more compatible if you move away from the constrained approach to the objective approach, and wildlife habitat is one that you have spoken about.

A. Yes, and I think that if you looked at things like the - I hate to have to use examples from away - but the example of Ward Thomas' -- Jack Ward Thomas' elk and ranchers and an exercise in

Colorado by Carl Walters, who I referred to yesterday, and some of his people with respect to deer and elk and cattle are kind of interesting in that it's grazing that you are looking for, and the issue is a rancher can also be a guide to go and shoot elk, how much land does he want -- how much of the grazing area does he want to retain for the elk herd and how much for his cattle. They are -- literally they impinge on the same resource, the forage.

The means of arriving at a reasoned trade-off for those weren't nearly as difficult, I think, in the two pieces I have mentioned as people imagined. Once the cost bearers and the benefit bearers sat down and looked at actual quantitative trade-offs, in both cases they quickly arrived at a situation which said, we will keep the cattle down to this number and we will go and advertise that we are the best elk hunting part of these great United States and did very well at it.

MR. HANNA: Q. Looking again at the article by Thomas on page 384, the first paragraph under Forestry/Wildlife Partnership ship, it indicates here that:

"Foresters and wildlife biologists must work as partners and that they must be

professional equals."

And you mentioned yesterday the Plonski Forest example of where you found the two individuals working together and seeming to achieve or what you expected if you investigated further, were achieving integrated resource management.

Now, would that be an example of what is referred to as partners and professional equals?

A. It's certainly -- I understand what Thomas means here, it would be an example of partnership. Professional equal in this situation has an awful lot to do with the information that each has at hand when they come to negotiate.

So that if I come to deal with a wildlife person and I have a complete record of all the stands, all assigned to yield curves, the dynamics of the forest completely in hand and we sit down and it turns out he has no idea how many deer there are in the forest, let alone what the population age-structure is, what the birth rates are, what the harvest rate is, what the illegal kill is, what the predation rate is, all of which are crucial to our argument, I have an unfair advantage. He will find himself arguing qualitatively against my hard numbers which really, as I tried to make the point yesterday, aren't that hard,

they are a characterization of a dynamic system.

So the professional equality doesn't mean that they both happen to have a degree, professional equality in this is going to mean: Do I have access to the kinds of information that I need in order to negotiate on an equal footing with the other person.

THE CHAIRMAN: But what do you do in a system that historically has provided much more of the quantitative data for timber than it has for the wildlife side, and the wildlife side, essentially as I understand it, is attempting to catch up and it's no where near, in quantitative terms, where timber is, where the knowledge about timber is.

So you are always going to have this disparity to some extent until you get more into some kind of equilibrium state, which may be a few years off yet.

THE WITNESS: Perhaps the most important thing to do is to recognize the inequality and its basis, that it lies in information not in what degree a person has or how many, and that is almost irrelevant; what counts here is whether or not they come with an equal understanding of the dynamics, the part of the system dynamics that they are trying to advocate, and this does become an advocacy process obviously when you

are trying to make a trade-off.

To be honest I would have to suggest that I think in wildlife we have looked at the wrong things for quite a long while. The fact of pulp mills and sawmills and real people in them telling us what kind of habitat had to exist in the forest for a population of pulp mills and a population of sawmills to be sustainable made it relatively straightforward for a timber manager to know what did that system dynamics he should focus on and how he should think in terms of system control.

The wildlife person is faced with a population that can't tell him in spoken word and by going through his MLa or whatever that this is what I want out there in the forest, and the result is we interpret -- we've had to interpret what a population might want and can only interpret from observing the response of the population to various interventions, whether they were accidential or intentional.

THE CHAIRMAN: Which obviously means that that kind of information cannot be obtained in a short period of time because those observations obviously have to be done over time to be meaningful; is that right?

THE WITNESS: I would say that's correct

and it would also suggest to me that a very wise approach would be to do it in what I called an adaptive approach so that every time you do something you do it in a way that maximizes the chance for you to learn about the population dynamics.

What happened was we focused on populations not on population dynamics, the wildlife populations, but on counts: Let's fly over and follow each moose track in the snow to the end and see if there is a moose at the end of it and what its sex is and then we will end up with an estimate if the moose population, rather than: What is the structure of the population, what are its dynamics, what are its dependencies on habitat.

It is an accidential thing if you want, but it's there, it's a real bias. The way to fix it isn't to put a counter bias in, it's to get to the root of the issue.

MR. HANNA: Q. And what do you mean by getting to the root, Dr. Baskerville?

A. The relationship of the wildlife population to the temporal and spacial pattern of its habitat, probably in energetic forums is going to be the best way to get at it.

Q. Can we look at 384 at paragraph 6

which is at the top -- I am sorry, it's paragraph No. 1 in the right-hand side.

MR. FREIDIN: I am sorry, Mr. Hanna, which paragraph?

MR. HANNA: Paragraph No. 1 on the right-hand column on page 384.

Q. I'm looking towards the end there where it says:

"It is not possible to meet wildlife objectives with no effect on wood production."

And I interpret this to mean that the two are - I think he uses the actual term co-products, joint products from the land base. Because of this co-product relationship, is this one of the reasons why you feel that they should be dealt with simultaneously in forest management planning?

A. Yes. You should note that he says:

"It's not possible to meet wildlife objectives with no effect on wood production certainly not everywhere and all the time."

And I believe that what he's saying is that if you will allow for a migration, as it were, around say a management unit that in fact we can. I

would also suggest that it may -- he maybe have left out a phrase that said without cost. At some cost we may in fact be able to do those, but generally I would agree with the statement, but I might want to qualify it a little.

Q. But with respect to the fact that they are inter-related and because of these feedbacks between the two, is that one of the reasons why you feel that it should be dealt with simultaneously from a planning point of view?

A. Yes. As I have said, the active implementing, a harvest schedule and a silviculture schedule by -- just inherently determines what pattern will exist in the forest over time into the future.

Since a population of wildlife is dependent on that pattern or to the extent that it is dependent on that pattern, then it becomes essential that you link the two activities.

THE CHAIRMAN: Mr. Hanna, do you want to find a place that we can conveniently break for lunch?

MR. HANNA: That is what I was just looking for, Mr. Chairman. I have one or two questions to deal with this and I will be finished with this paper, and then I think that would be an appropriate time, if we can.

THE CHAIRMAN: All right.

MR. HANNA: Q. Dr. Baskerville, on the bottom of page 384 there under Rules of the Game and Who Pays, the third sentence there makes reference to the difficulty that managers are faced with, and it carries over that:

"This is particularly the case where there may be a difference in inconsistency where there is competition involved and this would lead to unfairness..." and whatever.

And I'm trying to see how, given this potential unfairness in integrating these non-timber values in the process among different forest management units, how do you see overcoming that?

A. I'm sorry, I was making a note. What was the last part of the question?

Q. Okay. Perhaps look at the end of that paragraph at the top of page 385:

"...particularly if that manager has no idea of what competitors may be doing in this regard."

My interpretation of that is that there is the possibility of one competitor being faced with different constraints or different costs than another,

and how do you reconcile that difficulty or potential difficulty?

A. Perhaps as a generality I would suggest that if any of us agree to bear a cost it's for one of two reasons; either the law requires us to or we see some benefit. One of those two is going to be the motivator for any one of us to accept a cost, so that...

THE CHAIRMAN: And the law sometimes, you would suggest, points out the benefit to those who don't see the benefit voluntarily?

THE WITNESS: That's not a bad point. Largely when we are forced by law to bear a cost it has something to do with the fact that the quality of life experienced by an individual is not -- does not sum up to the quality of life of the society.

So that the law says in order for society to have what we want, we are going to put some costs down to the individual. It becomes a matter of distribution and in all of those cases we will seek equity.

I'm not opposed to -- I don't want to get into a discussion of current taxation questions, but I'm not opposed to paying taxes to the extent that I believe that the total benefit package is there.

But that is important, because if we invoke the bearing of a cost by law what it does to anybody is, they act at the margin: What is the minimum action that I can do to meet that. I'm not going to pay a damn cent more taxes than they charge me. What is the minimum that meets the requirement.

Whereas if I'm looking at the other side where I bear a cost in order to gain a benefit, there is some motivation for me to say: If I had huge costs I could get huge benefits but I couldn't use them all, but somewhere inbetween there is an amount where it actually pays me to incrementally bear costs in order to get more benefits.

THE CHAIRMAN: But doesn't it often work well where there's the law or the legislation to prescribe the minimum and a company or an individual who has to meet the law then perceives in addition to meeting the minimum, also a benefit in being portrayed, for instance, as the good corporate citizen or going beyond what is required.

Suddenly they may not have obeyed the minimum in the first place had the law not been there, but being forced to do so in some cases then has them looking for benefit at the same time as they are meeting the minimum requirements. And that seems to

be, I'm not saying a philosophy--

THE WITNESS: Give me an example.

THE CHAIRMAN: Well --

MR. MARTEL: Well, a compensation board, if you are a bad actor and you get into a lot of trouble and you convince people to improve, what in fact you see is you see your assessment rates go way down.

THE WITNESS: Okay.

THE CHAIRMAN: And there a lot of examples, without mentioning any particular companies in particular, that have been required to meet certain emission standards. Having done so, they have invested heavily in research in order to be able to do that and suddenly have fastened on to new technology that they can then market as technology and there's a real corporate benefit.

THE WITNESS: Yes.

THE CHAIRMAN: But they may not have gotten to that stage had they not been required to meet the emission standards in the first place.

THE WITNESS: That's a neat point because if you think about it there are industries around us today that would not have existed except by that mode, yes.

THE CHAIRMAN: Right. Anyway, that is probably a pre-lunch aside.

MR. HANNA: Q. I would like to just look at pararaphs 4 and 5 on the left-hand column on 385, and I believe Dr. Thomas is dealing specifically with this matter of trying to reconcile the potential inequities or potential distributional effects that might come as a result of this and he indicates TKEUTS> in paragraph 5 two opportunities; one is direct compensation and the other is --

A. Is this the paragraph in the conclusion?

Q. I am sorry, no. This is 385.

A. Yes.

Q. Page 385.

A. The page numbers are gone. This is 4 -- okay, yes. Now, whereabouts?

Q. The fifth paragraph in the left-hand column, fifth full paragraph, sorry.

MR. FREIDIN: Starting with the words what?

MR. HANNA: "Is there..."

Q. It says:

"Is there any way out of this paradoxical situation, the problem that we are faced

with in terms of these costs being seen as constraints."

He's indicating he sees two opportunities; one is to compensate, the other is to clearly spell out the responsibilities in terms of wildlife production in the forest management plans.

Now, I believe you touched on this yesterday and I don't believe you finished. I think you were talking about the possibility of putting moose production targets in forest management plans, and I'm wondering how you see that relative to these statements here.

A. The two options that he offers here as for instances appear to be that someone called a manager bears the cost, where the benefits go to someone else; as opposed to whoever receives the benefits will in fact reimburse the manager for the costs.

Q. That is the compensation option?

A. Yes.

Q. Right. And what is the other one?

Q. The other one is that there could be clearly spelled out responsibilities in terms of wildlife production and habitat considerations.

MR. FREIDIN: Mr. Hanna, could you help

me and advise how far back in this article we have to go so we can understand what the paradoxical situation is that is described?

I'm having some difficulty understanding or following the question without knowing what is being spoken about. Maybe it would be helpful for Dean Baskerville if you did did the same.

MR. HANNA: Certainly, I will help you there, Mr. Freidin.

Q. In paragraph No. 4, the one immediately preceding paragraph No. 5, indicates the paradox and he says:

"This presents forest managers with a paradox: If wildlife is a desired product for a managed forest it should be considered just that and not a constraint. On the other hand, if a company or a corporation is charged with producing wildlife which is desired by society at large it can only do so by incurring the direct and opportunity cost of producing that wildlife, therefore, wildlife becomes a constraint and hence the paradox."

And I believe Dr. Thompson then goes on

to explain, well there is several ways that he can see dealing with this paradox; one is direct compensation; in other words, those who bear the cost could be compensated by those who bear the benefits or, secondly, that the reponsibilities are clearly laid out such that there is no unfair distribution of those costs among those parties that are in competition.

A. Actually it seems to say that in the latter case the individual entities who have been assigned some element of the total management package will in fact absorb their costs equally to avoid questions of equity. So it's just a matter of how you pay, not whether you pay.

Q. Well, in one case you don't pay because you get compensated; in the second case you pay but the payment is not unfair in terms of other competitors; in other words, it's equally distributed so you don't prejudice--

A. Mm-hmm.

Q. --one party rather than another. Now, you had mentioned yesterday with respect to the potential of putting moose production targets in forest management plans; do you recall that?

A. Yes.

Q. Now, the concern I had with that is

that I saw difficulty in putting population targets in forest management plans because the -- and let's take an FMA, it's a private forest company, the private forest company controls only one of the population levers, it only controls the habitat leaver. It may be because of whatever circumstances out of their control that the herd is overharvested for example, so no matter what they do in terms of habitat they can't comply with what has been set out in their contract.

And what I'm asking you is: Do you see it feasible to put in the contract to maintain this equity, this even distribution, habitat targets that are based on population targets but with certain assumptions regarding those other factors that control the population, so that the forest industry isn't put in an untenable position?

A. The issue is, if you took a portion -- as I understand the issue, if you took a portion of the wildlife region - wildlife unit I guess it's called - moose production target and assigned it to that management unit and said the number of moose for this management unit must be maintained at this level and found the FMA holder to deliver the necessary habitat, he could still fail if in fact the hunting pressure or the poaching pressure or winter, bad

winters caused the population to decline.

THE CHAIRMAN: Because that is controlled by somebody else.

THE WITNESS: Yes, and there are -- those kinds of problems will exist, I think. No matter how we deal with the resources as geographically spread as this, it seems to me that if I were going to enter into a contract to manage to provide population in the habitat, I would want to have in it a clause, that by the way you are going to control the hunting pressure.

There has to be a population dynamics of the moose population controlled by the habitat available which sets a limit and by hunting pressure, whether it's legal or illegal, and those are elements that would have to be covered.

THE CHAIRMAN: But isn't that the way it's done in Ontario now, with the Ministry controlling the wildlife management but requesting from FMA holders in certain cases that, they do it by way of constraint, certain habitat has to be provided but it's the Ministry that controls the harvest?

THE WITNESS: Mm-hmm.

THE CHAIRMAN: And so overall the Ministry is saying we can control population levels by demanding from industry certain habitat by controlling

the harvest and by having in a wildlife plan, as opposed to the timber management plan, the population targets.

THE WITNESS: Mm-hmm.

THE CHAIRMAN: It's just a different entity that is going to deliver part of it, which is the FMA holder.

THE WITNESS: I think that that is my understanding of the structure. There is a high risk that you have separated some control of pretty crucial dynamics in a manner where the people who set bag limits and the people who are controlling the habitat, if they haven't communicated well you get in pretty serious trouble.

THE CHAIRMAN: Well, supposedly that is done in the management team concept, I mean that's in theory anyways where you bring those two together.

THE WITNESS: When the province engages a company on an FMA, they set the hunting pressure of the company on the forest, in effect, they set the harvest level which is what we are talking about about.

Now, how do we do the equivalent of that for the wildlife so that there is a reasonable expectation that a process designed to provide the appropriate habitat will be followed by a population

response that is expected, and you can't get that unless you simultaneously have some control on the harvest level.

So it has to be an element of the discussion. To do it separately would really, I think the risk of something coming unglued would be very high. I would want the discussion decided on what habitat management and what population levels were going to be established to be carried out together before you began the management of either one.

MR. HANNA: Okay, Mr. Chairman, this is probably an appropriate place for a break.

THE CHAIRMAN: Okay. We will break until a quarter to two. Actually, let's break to two o'clock.

---Luncheon recess taken at 12:50 p.m.

---On resuming at 2:05 p.m.

THE CHAIRMAN: Thank you. Be seated, please.

Very well. Mr. Hanna?

MR. HANNA: Q. Dr. Baskerville, I just want to make sure I understood where we left off before lunch. We were talking about this possibility of incorporating in the plans for particularly forest management agreement areas targets for the, I think we

were talking specifically about wildlife, say, moose targets.

And am I right in saying that you felt that this has some merit to it provided that there was some protection given in terms of what was expected in terms of the other population factors?

A. Yes, there is some advantage in that at minimum you gain in the manager some pride in delivering, if he is delivering both; and at worst you prevent the conflict of having an objective over which the person who is called the manager doesn't have full control of the moving parts.

Q. So that would be an effective way to deal with it?

A. Yes.

THE CHAIRMAN: But would you suggest that an FMA holder should be the one in charge of determining (a) the harvest limits for wildlife on his units; and (b) enforcing that?

THE WITNESS: No, I think you are talking about objectives.

THE CHAIRMAN: Okay.

THE WITNESS: And law enforcement and those clearly aren't part of that, they have to be set outside.

MR. HANNA: Mr. Chairman, just for the record, I wasn't trying to infer that either, so just to be clear.

Q. Dr. Baskerville, I would like to now move to a matter that had received some attention at this hearing and that is what has been termed here habitat supply analysis.

And one of the references that has been dealt with in that matter is the paper that you wrote in the Forestry Chronicle in 1985 entitled: Adaptive Management, Wood Availability and Habitat Availability, and I believe it was actually entered with the witness statement of Panel 8.

And before we get into this discussion of habitat supply analysis, I want to clear up some terms so we keep them as clear as possible.

THE CHAIRMAN: Just a moment, we have to find that document.

MR. MARTEL: Do you have a number for it?

THE WITNESS: It says 378 in the corner of mine. Would that mean something?

MR. HANNA: Mr. Martel, it is part of the witness statement for Panel 8. Now, I spoke to Ms. Devaul and unfortunately I am not sure that all of that material ended up coming down.

Mr. Chairman, I think we could proceed --

THE CHAIRMAN: How big a copy is it?

MR. MARTEL: It is in 8?

MR. HANNA: It is in 8, yes, Mr. Martel. It is quite brief, Mr. Chairman, and I am not --

THE CHAIRMAN: We have 8.

MR. HANNA: Oh, okay.

MR. HANNA: It's on page 363 of the Panel 8 witness statement.

Q. Now, I think we have heard your view of adaptive management and I think the Board has a good understanding of that at this point.

I want to understand how habitat supply analysis and adaptive management, how those two fit together. First of all, what is habitat supply analysis in your terms?

A. If I went back to the diagrams we looked at yesterday where I characterized the forest and showed a harvest schedule and a silviculture schedule which would allow you to forecast how that forest would change over time and replaced the yield curves in that, I would call what we were looking at a timber supply analysis, wood supply analysis.

If we replaced that with habitat curves instead of yield curves you would have a habitat supply

analysis. So it would be an analogue of timber supply analysis.

Q. And the difference between those two curves would be in what defines the vertical axis?

A. That's correct.

Q. Without getting too complicated about this, it's possible that that yield curve could be multi-dimensional given the multiple factors that might make up habitat?

A. Yes. The last slide that -- overhead that I showed yesterday in fact showed a volume curve and I think three habitat curves, if you remember at the bottom, and you would need as many habitat curves as you had species or species guilds, featured species, whatever, that you were going to make forecasts for.

Q. Is there another aspect to this in that the -- and I believe you provided quite clearly in Exhibit 970, if you recall, the yield curve which had the age-class distributions underneath it and the bar chart with all the stands shown figuratively. I'm looking at page -- this is just one example on page 19, Exhibit 970.

A. What page number?

Q. 19.

Q. You were able to take those spacially

disaggregated stands that are shown in the age-class distribution in the bottom and move those up into the yield curve?

A. Mm-hmm.

Q. Because the actual spacial distribution doesn't affect the volume?

A. That's correct.

Q. Now, if that was habitat, the spacial distribution of those stands may affect its habitat qualities also?

A. That's correct.

Q. So that in addition to this one-dimensional aspect of the curve, one would have to look at the spacial distribution; in other words, it would be a more complicated curve than shown here. You couldn't just simply -- you might be able to simplify it, but you may not be able to also?

A. Yes. Both -- the volume one is a spacial aggregation which says by putting all of the stands that were between 110 and 120 years old and collecting them, no matter where they were in the management unit and saying here they are in one little block and they are at this point on this yield curve, does considerable violence to the notion of accessibility with respect to harvest because it makes

the presumption that all of those stands that make up that age-class are in fact equally accessible.

So that you have essentially the same problem of aggregation when you aggregate for timber as you do for wildlife; the timber manager who has to find the stands that are in the 110 to 120 year age-class when it comes time to cut them knows very well they aren't in a nice little rectangular block at the bottom of the diagram. Other than that, yes.

Q. So the same tools that can be used for the yield curve analysis may well be able to be used for the habitat supply analysis in terms of the forest structure?

A. Computer model tools sort of thing, or...?

Q. Geographic information systems--

A. Yes.

Q. --the whole realm of tools?

A. My familiarity with habitat supply analysis comes from a project where one of the team members who assisted in New Brunswick with a large amount of timber supply analysis, but who happened to have a wildlife background, he was a wildlifer who had been dragooned into a team to carry out an analysis of the whole province, subsequently pointed out that,

given reasonable access to computers and some money, there are always costs, he believed he could run a similar process, in fact, using exactly the same model to start with for habitat.

So that he could use the same model so that he could take the harvest queue and silviculture queue that came out of the timber supply analysis, and then instead of having derived from, he used to drive the model only with habitats in, so that he could see what the output in terms of habitat would be if he used the timber schedule -- harvest schedule and the silviculture schedule from the timber model.

And the process worked well enough in a very small compact unit where it was easily testable that it has since been extended to all of the Crown land or is in the process of being extended.

Q. In the absence of that sort of analysis, would you agree with me it's a herculean task to attempt to deal with the spacial and temporal dynamics of the forest in terms of wildlife habitat without that sort of tool?

A. It is either a herculean task or a very light task. To achieve the same level of repeatability of analyses and the same level of capturing of the dynamics, it would be impossible in a

mind model. You simply -- I don't think the human mind could handle that.

So, yes, if you want to do analysis of what kinds of stand types will be available in a hundred thousand hectare forest over a period of 50 years in the future, I would use a computer model.

Q. And is it your view that that type of analysis is important in order to understand those dynamics?

A. The most important use of the model - I would argue first from the point of view of timber - is to use it analytically rather than prescriptively.

Play 'what if' games they're called: What if I harvest at this level and don't plan, what if... So that you examine the response of the system as you have characterized it in the model to see if it's consistent with what you would expect a real system from your experience to do.

So that the first things that a manager tries in almost every case I have worked with, I mean, the first two or three cases they will test in a model are cases they have already seen and they know the answer for it, they want to find out if this thing works in a way that they should give it any credibility.

So that the -- and it turns out that is in fact the most important use of the tool, is to analyse the production possibilities; rather than start with a target, you find out what are the reasonably possible futures that you could get to and the conditions associated with those.

It has the impact of greatly enriching the numbers of objectives that are considered.

Q. What I would like to do now is I would like to go through a comparison of the advantages and disadvantages that habitat supply analysis versus the guideline type of approach might offer. To attain your views on that comparison, I am going to go through it step by step, if I can.

What I would like to do is, I will indicate to you a criteria and then I am going to provide you with my interpretation of it in terms of HSA and guidelines and obtain your comment on it, if that's acceptable.

A. We'll try.

Q. Okay. The first I have termed -- the first criteria I have termed vertical integration of resource management. By that criteria I am referring to what you have talked about, bottom up/top down, being able to go from local level effects to forest

level effects to provincial level effects and back down again and maintaining that consistent transfer.

Now, if you have an HSA system in place, does this provide the potential for a direct linkage between population targets and what happens on the ground?

A. The question boils down to: If I draw the equivalent of a yield curve, if I say that for this population of deer, as I did yesterday, there is a requirement for this many hectares of summer foilage and this many hectares of winter habitat, does that accurately reflect the population response out there, and the answer is: To the degree that your understanding of the interaction of the population with the habitat is accurate, then your characterization of it is accurate.

And being forced to make that -- draw that line causes you to go and look and see if in fact you have to put a measure on it to draw it, and when you draw it one of the first things that happens is you begin to go out and see if in fact you can measure it and it is a reasonable approximation.

THE CHAIRMAN: I am not sure if that answered the question, or maybe I didn't understand the question.

THE WITNESS: Okay.

MR. HANNA: No, I would agree with you, Mr. Chairman.

THE WITNESS: Try again.

MR. HANNA: Yes, I am going to do my best here.

Q. What I was getting at was this need to connect an objective with something that happens actually on the ground. And as we have gone through, and I think you have quite articulately expressed the need, the way an objective should be developed is by looking at production possibilities, taking that to the people who own the land, making the trade-off decisions and then going back to the manager and saying: Please try and produce this.

Now, with HSA do you see a direct connection between that objective that arises out of the production possibilities and what will happen on the ground?

A. Okay. In the forecast that you make there will be a direct connection between the equivalent of the yield curve for habitat that you draw and whatever rules you put in for harvest and silviculture in any forecast; that will be an absolutely rigid connection.

The question really was: Will that be what happens on the ground, and the answer again has to be: Only to the extent that (a) the yield curve represents the way deer react to habitat and the way the silviculture schedule and the harvest schedule represent what actually is implemented, and there isn't a way that you can make a forecast that that won't be true.

I mean, you can ignore all of those things and say: If I do this the deer will feel better, but I would argue that when you do that you presume all those things I just mentioned. So...

Q. I'm sorry.

A. Go head.

Q. Let me ask the question then with respect to guidelines. You have got a general understanding of what I mean by guidelines. It doesn't matter to have a detailed understanding of the guidelines, the guidelines say: Don't make cuts any bigger than this and leave shelter patches, that type of thing, I am dealing particularly here with what are called normal operating areas, that basically say: This is the size of clearcut we want. And that's the primary focus, in fact it is the only focus that -- I am talking now of the moose guidelines.

A. Mm-hmm.

Q. Given that, is there a way to connect those prescriptions in a population target, at least explicitly?

A. No, not to my knowledge. They are qualitative things and there is no attempt to make the connection to the population, they are quite different. You don't see them drawn as a line which says: As the forest changes in these characteristics, here is the response of the habitat.

Potentially you could do that, you could in a simulation model, actually it would have to be fairly elegant, but you could apply the guidelines and see what it did.

If the distinction is between: Is there a direct connection to a population, a numeric forecast in one and not the other, I would say the answer is yes, because the habitat supply analysis is built precisely to do that.

The guideline is a guideline. I believe the forward of most of those says that these are believed to be much in the sense of what the Chairman said this morning, the minimum sorts of things that we need to do in order not to lose control at the front end, but not -- in any of the ones that I remember

reading, do they say that if you do these things you will close on a target for sure.

Q. Okay. And given that, is it possible to practise adaptive management with that type of guideline approach, without having made that explicit linkage?

A. It would not be possible if you did not make that explicit linkage. So what you would be caught with is: you could make the first run, you could make the first forecast, but then if you were to learn whether or not you are closing on the goal, sooner or later you must say: What is the goal, what are the cause/effect connections in the natural system, how have I intervened in those cause/effect connections and are my interventions leading to closing on the goal, which means you would have to measure something sooner or later.

THE CHAIRMAN: Okay. But going back to what we have already discussed, if you have got a target in a wildlife policy, it's not part of the timber management plan, but you have a numerical target--

THE WITNESS: Mm-hmm.

THE CHAIRMAN: --you have a timber management plan that operates with adherence to

guidelines, which I think everyone will concede operate in the manner of constraints--

THE WITNESS: Mm-hmm.

THE CHAIRMAN: --is there not that kind of linkage because the wildlife objective is quantified?

THE WITNESS: The wildlife objective in my experience is not quantified on the same --

THE CHAIRMAN: No, not on the same land base, okay, add that in as well, it is not quantified on the same land base.

THE WITNESS: Yes, but given that I --

THE CHAIRMAN: But it may be able to be disaggregated onto the same land base. It may be a larger land base but you may be able to break it down in some manner to the timber management unit.

THE WITNESS: Yes.

MS. SWENARCHUK: Mr. Chairman, wouldn't it be fair in that hypothetical to include what we established yesterday which is that the numbers are not disaggregated to the management unit level; whether or not they could be, they're not.

THE CHAIRMAN: Okay. I think that's fair for the question. They are not disaggregated to the same land base.

THE WITNESS: Okay. And the question is: By applying guidelines on the units which make up together a whole --

THE CHAIRMAN: Right. So that when you apply the guidelines throughout the whole province on all the management units you end up effectively applying them to the same land base as the overall wildlife objective is quantified in another resource program. So if you are managing for moose across the province--

THE WITNESS: Or across 20 units say.

THE CHAIRMAN: --or across 20 units or whatever it is, and you took the timber management plans of the 20 units, applied the guidelines in all 20 units, could you end up with some kind of integration between the two, between the population level as established by the wildlife guideline and the way you would set your harvest and silviculture schedules in the 20 management plans so as to achieve that wildlife target?

MR. HANNA: Mr. Chairman, before Dr. Baskerville answers that, I just want to make sure that I was talking about adaptive management. I don't mind talking about integrated resource management now, but I was asking about adaptive management specifically.

THE CHAIRMAN: No, I understand that.

MR. HANNA: Okay.

THE WITNESS: That presumes that somebody is actually counting the response of moose on that larger unit, so that over a period of five years somebody knows whether the moose population has gone up or down on the larger unit.

THE CHAIRMAN: I would presume so because it appears that the wildlife target for moose is set provincially at a number to be achieved over a number of years.

THE WITNESS: Actually is it not set for units somewhat smaller than the whole province?

THE CHAIRMAN: I don't believe so. I may be wrong.

MR. HANNA: Mr. Chairman, perhaps we should just clarify, and perhaps Mr. Freidin can interject here if I am incorrect.

My understanding is that there's a provincial target set, that target has then been disaggregated to the individual wildlife management units, so there is I believe a target by management unit.

MR. FREIDIN: That's correct.

THE CHAIRMAN: Okay. Sorry, I stand

corrected on that.

THE WITNESS: Either way, if we go back to your original question, that would be -- you said 20 units, you would be talking of the order of 4-million hectares, and your response could average out over that 4-million hectares. And in five years the proportion of the 4-million hectares that you treated might be somewhere around 4,000 hectares. You would never detect the impact, I don't think, at that scale.

You would average -- the huge area would average out the impact of any treatment that you would make. It may not average -- it would not average out what an individual hunter experienced when he parked his car and got out and walked into a clearcut. And that's a different question altogether.

THE CHAIRMAN: But you could ascertain whether your wildlife target was being met; could you not?

THE WITNESS: If there can be an evaluation of the moose population on the scale of the 4-million hectares or whatever unit it is that you want to take, yes, you can. You would not know nor have any reason to believe that the actions you had taken had caused that to happen. You haven't put forth a cause/effect basis for arriving at it.

THE CHAIRMAN: But you would have the basis to know that whatever you did did not cause a decrease in the population and did not prevent you from reaching your objective?

THE WITNESS: That's a fair statement.

MR. MARTEL: Despite what was ongoing in the system.

THE WITNESS: At least they didn't go in the wrong direction.

THE CHAIRMAN: That's right.

MR. HANNA: Q. And likewise, Dr. Baskerville, if the herd went down, you wouldn't know whether it was because of something you did or something else?

A. Exactly.

Q. So you really won't be able to make that cause/effect linkage that's so important in terms of deciding on whether we are moving to where we want to go?

A. In the same vein, if you took the individual unit and you want to produce a moose per 10 square kilometres or whatever the target is, you could -- again the question is: How well, how much you learn in five years' of experience of applying guidelines and going out and counting moose, how much

you learn about the system dynamics as opposed to what reassurance you gained that the moose didn't drop below some level.

It seems to me that given the way we are starting here the most important feature should be to learn as quickly as we can about the relationship of the moose population to its habitat, because failure to control -- failure to detect an error at a couple of hundred thousand hectares in a management unit, we could still have some fairly big errors going on that hadn't accumulated yet.

MR. MARTEL: But isn't that why the Ministry has established, for clarification, the monitoring program that they envisage doing over the next 10 years is to in fact try to ascertain what is going on out there. The effects monitoring...

MR. HANNA: Mr. Martel, I was going to ask some questions, limited questions on that particular matter because it does relate to adaptive management quite rightly, as I think you have identified. I'm happy to have it answered now, but I am going to deal with that subject in more detail in terms of --

MR. MARTEL: It was just based on the answer we were receiving--

MR. HANNA: Yes, fine.

MR. MARTEL: --he didn't know what we were doing. I am not sure Dr. Baskerville was aware that we are moving to this monitoring program, but how it tied in with what MNR is anticipating doing.

I mean, I think the question, one section without bringing the other section in doesn't give him an opportunity to really give the type of response with all the cards on the table, so to speak.

THE WITNESS: I would draw a distinction, Mr. Chairman, between monitoring and forecasting and testing the forecasts. If it isn't clear that there is a distinction there, I want it to emerge as we go on.

MR. HANNA: Q. I think that's a very important point, Dr. Baskerville, in my view, and I want -- perhaps this is the point to make that very clear, what the difference is between monitoring and -- I forget your other term in terms of a forecast, testing a forecast?

A. Yes.

Q. Perhaps just take a moment and just explain that, because I think that is a critical issue.

A. If we simply carry out whatever actions we believe are appropriate and then after the fact when we've got real data look back - because once

we have done the things we can have data - look backwards and say what have we done, that's monitoring, and we keep making steps hoping that none of them is a disasterous one and at the end of each step looking back.

The distinction is that the other approach attempts to look forward; you make a forecast and at the end of the period, the monitoring, if you will, will not in fact be limited to total moose population but would key on the kinds of things that the forecast is sensitive to to see whether or not your forecasting procedure is reasonable, as well as your estimate of the total population.

It's often characterized in the literature, monitoring is like driving down the road looking only in the rear view mirrors. It is possible, if you are very cautious, drive slowly and scrunch up to the mirror so you can see the white line on the road, but not real safe; whereas forecasting attempts to look forward, determine before you face them -- determine problems before you face them, and try to act in advance of arising problems, rather than to deal with them after they are defined by history.

Is that a clear distinction between...

MR. MARTEL: Yes. I'm not sure it

answers the question I was attempting to get across though, that we are not just monitoring or we are told that MNR just doesn't intend to monitor, but that they put a whole program with substantial amounts of money to do effects monitoring as well to determine what the guidelines are doing at the same time, whether in fact the guidelines are working that the Ministry intends to use in the overall process.

That adds another dimension to the formula, if I might suggest.

THE WITNESS: Yes, I see what you mean.

MR. MARTEL: And I don't know what the effect then is on the answer you are giving.

THE WITNESS: Mr. Chairman, this sounds like something that's been presented in a panel that I have not reviewed and...

THE CHAIRMAN: It may well be. Unfortunately we have the disadvantage or advantage, whichever way you want to look at it, having heard 19 months' worth of dissertation on various aspects which you are focusing on a small portion and, of course, we find it difficult I think at times to divorce other things we have heard when we think it may interface with what you are telling us.

MR. HANNA: Q. Dr. Baskerville, maybe I

can interject here and help us on this because what I am going to do is, I will try and tell you my view of effects monitoring - I am sure Mr. Freidin will tell me if I go astray anywhere - and I want to then ask you in that terms how that relates to the adaptive management and this need for explicit forecast.

The habitat -- or the guidelines, I think it is fair to say, do not have an explicit cause/effect --

MR. FREIDIN: Mr. Chairman, I thought this was the very matter that was directed by the Board that we weren't going to get into. It would be unfair to have someone try to summarize what the Ministry has done and have them respond.

THE CHAIMAN: Well, we --

MR. HANNA: I will put it as a hypothetical if you want, Mr. Chairman.

THE CHAIRMAN: No, it is not a matter of even putting it hypothetically, Mr. Hanna.

Again, we don't expect, Dr. Baskerville, that you would have reviewed all of the data that has come before the Board and all of the information, nor do we really necessarily want you to be in the same position that the Board is in in having to reach some kind of conclusions on everything that is being put

before us. We feel that that properly is our mandate and, although you may have opinions, we may agree or disagree with some of those opinions.

What we are looking for is some information and your views on some of the areas which we have directed through counsel to have you apprise yourself of and the Board, of course, as you have probably seen from the scenario so far, has its own questions as we go along.

We are not, Mr. Hanna, going to get into a situation where one of the parties is going to get up there and attempt to summarize what has occurred through 19 months' worth of testimony. Your appreciation of what happened may be far different from ours and far different from those of the other parties and it is unfair, even in a hypothetical way, to put it to Dean Baskerville in that sense because it puts him into the position of having to base his answers on your interpretation, and I would suggest that would lead to all kinds of parties leaping up at various stages perhaps questioning your interpretation.

MR. HANNA: All right.

Q. Dr. Baskerville, with the habitat supply analysis approach and the need for the feedback link that I think you talked about in terms of adaptive

management, is it fair to say that you would go into a defined piece of land - in this case I think you said that you'd ideally like to see it be a timber management unit because that's the area over which the activity will be taking place - would make a forecast of the -- well, not a forecast, you can pick your right word, but you will make some prediction of the -- some analysis of future possibilities based upon the production possibilities you have available to you, select a production possibility that seems to be most reasonable to deal with your objectives, and then over time you would implement that and monitor the resource to see how it responded to what was taking place.

And that's part of habitat supply analysis and, to be more global, adaptive management type of philosophy you've put forward; is that correct?

A. Essentially correct, yes. There may be a semantic problem here with the use of the word monitor.

I would suggest that adaptive management requires what I would call an evaluation, a systematic comparison, numeric comparison of what was expected with what actually happened. The principle here being that learning only occurs when expectation and reality are different.

We don't always learn when expectation and reality are different, but if they don't turn out to be different there isn't an opportunity to learn. And the reason for being explicit in the measurements is to expose as quickly as possible the errors in the forecasting procedures.

The importance here in the general context of what we have been discussing is that you can have a feedback loop that -- may I?

If you recall yesterday we talked about controlling temperature in the room over time and if the thermostat was set at that it is possible to have a system that I think was functioning this morning with enough slough in it that the temperature is up here someplace (indicating) and that the amplitude of variations about that are like this. (indicating) It's also possible in a controlled environment chamber to have them where they look like this. (indicating)

And your ability to control and recognize these changes is dependent on the precision of the thermometer -- in the thermostat, the timing with which it senses: Does it sense continuously or does it sense once every five years or once every 10 years? The comparison that it makes, the precision of that comparison and the sensitivity of the control, the

responding system that delivers heat or delivers cool air.

In actual fact, we have got two feedback systems here; one is the thing that keeps us up so that we are not as cold as the outdoors, and the other is a cooling system that drives it down, and they are interacting.

The issue here is that the population is oscillating or responding in some way, whether it is oscillating or not, and we will not be able to detect those changes and the causes thereof with any more precision or any more accuracy, either one, than the kinds of techniques we use to assess and measure.

And monitor in my, I guess, background has had a connotation that it was a pretty casual sort of approach where we went out every so often and had a look. And if there is a message I would like to leave, it is that we should systematically put ourselves in a position where we take a realistic forecast and we test it as rigorously as we possibly can; when we identify the difference between the forecast and what is actually there, we find out why they are different: what was the element of the forecast that was incorrect.

So it becomes important to measure, to

measure at a level consistent with the kinds of -- the scale of variation in the population. We wouldn't want to keep this room within one degree nor would we want to keep it inside a range of 20. I'm sure we wouldn't want to monitor a moose population to the nearest moose, but neither would we want it to the nearest million.

MR. HANNA: Q. Dr. Baskerville, critical to what you are saying is the need though, however, to make that linkage, that cause/effect linkage explicit and in the guidelines that cause/effect linkage is not explicit; is that not correct?

A. No, it's implicit.

Q. But to do what you are suggesting requires that explicit linkage?

A. To learn effectively you need to be able to learn about cause/effect, that's what system control is all about.

THE CHAIRMAN: But you are learning about cause/effect as a result of taking a realistic target and then trying to measure to see how close you are and why, if you aren't close, what the cause is, isn't that learning about the cause and effect relationship itself? You haven't got it established, you are learning about it.

THE WITNESS: Yes. You have just given a neat description of what I would call an adaptive process. That's exactly what it is all about.

MR. HANNA: Q. Dr. Baskerville, maybe I didn't understand that, because my understanding of what the Chairman just said was that - Mr. Chairman, you can correct me here when I don't interpret you correctly - but, that we don't make the explicit cause/effect linkage until we've collected some of that understanding of the linkage; in other words, we don't know the linkage well enough right now?

A. He inferred the linkage, said we will make a forecast and then we are going to test to see whether or not the basis of our forecast was in fact correct.

THE CHAIRMAN: And by doing that you are--

THE WITNESS: You are learning.

THE CHAIRMAN: --confirming the cause/effect relationship?

THE WITNESS: Or changing your view of it more likely.

THE CHAIRMAN: Or changing it, that's right.

MR. HANNA: Q. And that is part of the

guidelines or not part of the guidelines; that's what I am trying to get sorted out?

A. No, that what he spoke to me sounded like the exact definition of the hauling of adaptive management, that you build a cause/effect relationship, you implement it to reach a goal, you assess the goal, you assess it in a way that leads you to either confirm or deny the cause/effect relationships, not just: Did you meet the goal, but why were your forecasts not right.

THE CHAIRMAN: Yes.

MR. HANNA: Q. Now, with the guidelines there is no explicit connection between the target and the guideline?

A. That's correct.

Q. And so, therefore, because of that break in the link, the learning ability is stymied?

A. Not stymied. What I would say in an extreme case that what it does is it puts you on a wider hoop. You have got to have a bigger error before you could detect it and interpret it.

MR. HANNA: Mr. Chairman, could I just have a moment to consult with Mr. Turkstra.

---Discussion off the record

MR. TURKSTRA: Can I address the Board?

THE CHAIRMAN: Yes.

MR. TURKSTRA: Mr. Hanna spoke to me at lunch time about the way in which he was going to proceed with the cross-examination of Dr. Baskerville this afternoon with a view to asking my comment on what he had proposed to do.

And the result of that conversation I think is that he is now down to the point where he has a series of propositions which he is going to be putting to Dr. Baskerville. He has those propositions in writing and he can either take Dr. Baskerville through them orally one at a time and, in effect, read them to him or we can give Dr. Baskerville the copy of the propositions that he has.

Now, as I understand, they are not things that he is saying are already established in evidence, but they are things that he will be putting in as part of his case.

From the point of view of shortening the cross-examination of Dr. Baskerville, it now seems to me that I could recommend to the Board that Mr. Hanna be permitted to give this list to Dr. Baskerville - presuming the Board will want to have it - and he has what amounts to 13 propositions relating to habitat analysis or adaptive management that he wants Dr.

Baskerville to comment on.

So I had originally suggested to him that since it was not a document that Dr. Baskerville had published, it's not something that...

MR. HANNA: It's not fact.

MR. TURKSTRA: Pardon?

MR. HANNA: It's not fact.

MR. TURKSTRA: It's not fact. But in reconsidering what has just happened here in the last while, I really do think that since Dr. Baskerville was provided with this a couple of days ago, he has had an opportunity to look at it, it might serve as a way of speeding the cross-examination and help the Board.

I don't know what the position of other counsel is on that.

THE CHAIRMAN: Do we have copies for the other parties?

MR. TURKSTRA: Mr. Hanna has copies for everybody.

THE CHAIRMAN: That probably sounds like an expeditious way to proceed. We are not dealing necessarily in that document with matters that we, in effect, scoped out of this examination to your knowledge.

MR. HANNA: I can assure the Board, Mr.

Chairman --

MR. TURKSTRA: I don't think so.

THE CHAIRMAN: Okay.

MR. TURKSTRA: I think it's directly a comparison of what Dr. Baskerville was talking about in terms of adaptive management and the guideline approach.

THE CHAIRMAN: Okay. Well, that would be an acceptable way I think to approach it.

Mr. Freidin, do you have any objections?

MR. FREIDIN: I would just like the opportunity to look at the questions and reflect on whether the ones that he may be suggesting have some propriety having regard to the ruling of the Board on the scoping.

THE CHAIRMAN: Well, should we take a short break at this time and give you an opportunity, Mr. Freidin, to look at it and the other parties as well.

MS. SEABORN: Mr. Chairman, just a point of clarification. Mr. Turkstra, is the suggestion then that Dr. Baskerville would put his comments on the record after--

MR. TURKSTRA: Oh, yes.

MS. SEABORN: --now that he has had a

look at this. I just wasn't sure when you said shortening up the cross-examination whether you intended that something was going to be written in response to this or this was going to be evidence this afternoon.

MR. TURKSTRA: No, Mr. Chairman, what it is, it's a well-defined framework of the cross-examination of Dr. Baskerville on a comparison of these two means of management. And what it does is it would give Dr. Baskerville the framework that the questioner is putting to him right in front of him and I think would allow him to focus more quickly on what this is about, what the questioning is about.

THE CHAIRMAN: All right. Well, that is in effect an aid memoire and will speed up the examination.

MR. TURKSTRA: Yes.

THE CHAIRMAN: Why don't we take 10 minutes at this time.

Mr. Freidin, will that give you enough opportunity to look at it?

MR. FREIDIN: I haven't looked at it, how about 20.

THE CHAIRMAN: 20?

MR. FREIDIN: Why don't we take our

afternoon break.

THE CHAIRMAN: All right, we will do that. We will be back in 20 minutes then.

Thank you.

---Recess taken at 2:55 p.m.

---On resuming at 3:25 p.m.

THE CHAIRMAN: Thank you. Be seated, please.

MR. HANNA: Mr. Chairman, I believe Mr. Cosman wishes to address the Board.

MR. COSMAN: Yes. Thank you, Mr. Chairman.

As you know, as we have been advised by the MNR, their case is going to complete next month. I have a number of people who have been asking me when they should arrange their schedule to organize in order to obtain the necessary time and scheduling in order they be here for the day one of when our case starts, so I want to speak to you about three matters.

First is the matter of the start date, the second is the matter of a scoping session, and the third is the matter of an outline of our case which I propose to do at the end of this two weeks after Dean Baskerville's evidence, just so that parties will know the staging of our case for purposes of organizing

themselves.

With respect to the start date, Mr. Freidin advises me that it is anticipated that the MNR case will be completed towards the end of January, the exact date of ours --

THE CHAIRMAN: And that is with the clearcut issue evidence also being put in, Mr. Freidin?

MR. FREIDIN: That is our expectation.

MS. SWENARCHUK: Mr. Chairman, we may have some questions to ask about what MNR intends to file with regard to the MNR evidence.

MR. COSMAN: I was going to suggest this, Mr. Chairman. January will be an important month for a number of reasons, not only the completion of the MNR case but, in addition, as of the day end of January, as you know, the parties will be submitting their terms and conditions in advance of the negotiating process that's taking place in February.

My suggestion is that if you were to fix February 5th -- Monday, February 5th as the start date for the industry case, I think taking into account all of the contingencies we are not going beyond that, the MNR case will not go beyond that date. If it finishes a few days earlier, I can assure you the parties will be able to use that time usefully in refining their

terms and conditions as of that filing at the end of the month.

If our case was to start on February 5th, we would have two days which is anticipated, by at least being able to do our first panel before the negotiations started.

The second matter is that of a scoping session, and I leave it for your consideration as to when that might be fixed. But if some time in January during Panel 17 if you were to fix a date, I would make myself available in Thunder Bay with the other counsel to deal with that, or in Toronto if you wish.

As for the outline of my case, I don't think I need say more at this time other than if we finish by next Wednesday -- or Tuesday or Wednesday, what I would like to do, to assist counsel, is to present how we will propose to stage our evidence and its various panels right to the end, and I think that would be of some assistance to everyone.

Really what I would like to be able to do is go to our people really a month away from our own evidence and say: Please organize yourselves and make yourselves available as of February 5th to be there and people can stage backwards from there.

---Discussion off the record

THE CHAIRMAN: Okay, Mr. Cosman. I think we can probably dispose of some of this right now.

The Board doesn't find anything wrong with your suggestion of fixing a start date for your case of February 5th. That is a Monday?

MR. COSMAN: That is the Monday I believe, Mr. Chairman.

MR. MARTEL: Yes, it is.

MR. COSMAN: January 29th and February 5th.

THE CHAIRMAN: And that will be starting in Toronto.

MR. COSMAN: In Toronto, yes.

THE CHAIRMAN: Now, the problem that we ran into is the idea of starting on Mondays while we are sitting in Toronto because I think it was Mr. Freidin that raised the difficulties with some of his support people, and I think you did as well, Mr. Cosman, that some of your witnesses --

MR. COSMAN: Not for the first two panels, Mr. Chairman, as far as I am concerned.

THE CHAIRMAN: We want to avoid this, we want to avoid parties who have to come in from the north because of it being mid-winter and because of it being not that accessible in terms of getting in from

Sioux Lookout or some of the other places in the north that they have to leave their homes, some as early as Saturday, to be able to reach here in time for Sunday evening to be able to start on Monday morning.

The Board doesn't feel that that is fair in a sense and this is a difficulty in terms of perhaps starting on the Monday.

Now, you are saying it wouldn't be a problem for your witnesses for Panel 1?

MR. COSMAN: That's right, Mr. Chairman.

THE CHAIRMAN: What about you, Mr. Freidin, with respect to any witnesses you may have from the north or any support staff?

MR. FREIDIN: I think we are probably all right on those two panels as well. So if you want to start those Monday morning --

THE CHAIRMAN: Okay, those we will start Monday morning as well for the first two panels.

If there are difficulties that arise we will have to consider it. We will fix the start of your case for Monday, February 5th.

As far as the scoping session, we will pick a scoping date for the scoping session in Thunder Bay. You have already filed your witness statements which I take it contain the executive summary?

MR. COSMAN: Yes, Mr. Chairman. We will be delivering our answers to interrogatories this week so that parties, as of the end of this week, will have our answers to the interrogatories and the earliest possible date the better because it puts us in a --

THE CHAIRMAN: All right. We are going to suggest the 10th of January as the date for which everyone has to get in their statements of issue with respect to the first panel for the industry, and then we would set a scoping session, Mr. Cosman, for the following week.

MR. COSMAN: Perhaps fix a date.

THE CHAIRMAN: All right. We will fix that for the Wednesday the 17th.

Ms. Seaborn?

MS. SEABORN: Mr. Chairman, I appreciate that Mr. Cosman is going to be providing us with an outline of his case next week, however we had said when we first discussed the timing of the industry's case that we did not want to be in a situation of even doing a statement of issues with respect to the first panel until we had a better idea of all the evidence.

It may be that we need to have a look at all the witness panels I think before we know what approach we are going to take on the first panel, and

presumably by next week we will know from Mr. Cosman whether all the evidence will be available by January 10th.

THE CHAIRMAN: What, all of the witness statements?

MS. SEABORN: That's correct.

MR. COSMAN: Mr. Chairman, as per the Board's ruling, we will have all of our witness statements delivered by the end of the MNR's case, most of them should be delivered by then.

But, in any event, with respect to the first panels, those as you know are the economic -- I think really are quite stand alone in many respects and don't deal with forestry operations in the field and such issues but deal with the socio-economic issues standing alone.

Now, no, I don't see how it would be too great a difficulty for the parties to indicate what they consider to be an issue arising out of the statements as delivered on October 1st in the same way they delivered their interrogatories in respect of those statements.

If anyone wants to raise a supplementary issue in advance of February 5th, perhaps we can accommodate it, but in order to ensure that there is no

delay, I would suggest that that the scoping session not be put off until after the MNR case finishes.

MS. SEABORN: I wasn't suggesting that, Mr. Chairman. If Mr. Cosman tells me that they are stand alone, then that is fine and, as I said, I would have a better idea to make this comment had I known the outline of the case which we are going to hear next week, but I think given that Mr. Cosman has said that these are stand alone, and presumably these are not issues that will be dealt with in later panels, then that is very helpful and it shouldn't be a problem.

THE CHAIRMAN: Okay. So let's leave it at that for the date of the submission of statements of issue from all parties and the scoping session dated itself in Thunder Bay.

Now, there is two other issues that my colleagues reminded me of; and, that is, we are going to have to deal formally, we understand Mr. Hanna, with the formal submission you are going to be putting to the Board dealing with purpose versus undertaking, that is one issue. The other issue was with respect to Mr. Colborne and the issue concerning the licensing provisions and we haven't set a date for that either, for either of those two matters.

We would suggest that we should get to

Mr. Hanna's motion fairly expeditiously because that is an issue that will change the complexity of the hearing depending on how that issue is disposed of in the Board's view.

MR. HANNA: Mr. Chairman, I believe we had spoken about possibly dealing with that on January the 9th. I'm open for an alternate date, but I think we had mentioned to you something about January 9th.

---Discussion off the record

THE CHAIRMAN: Well then, perhaps we will deal with both issues, both the licensing and the issue concerning the purpose on January the 9th, the day we go back to Thunder Bay and get both of those matters in terms of formal submissions out of the way. The Board can then rule on those within the next short period thereafter, after we have had a chance to consider the submissions, then we can proceed right into the evidence following that.

I know, Mr. Freidin, you are going to jump up and say that there may be a problem in terms of how we approach the evidence of Panel 17 in the absence of a ruling.

Was that going to be your...?

MR. FREIDIN: No, no. I think I know how I will have to deal with that and I just assumed that

you would make your ruling before cross-examination begins.

THE CHAIRMAN: Yes. We will try and come out with one as expeditiously as possible depending on how much and how difficult it is to arrive at a ruling on that.

With respect to the matter of purpose, we have asked Mr. Hanna, and I believe you were going to submit a formal Notice of Motion--

MR. HANNA: Yes, sir.

THE CHAIRMAN: --which will precisely set out what you are requesting of the Board.

MR. HANNA: Yes.

THE CHAIRMAN: And I think the Board will probably be requesting written submissions from the parties on that issue. We haven't seen your motion, but if it is as I expect it to come in, dealing with some of the matters already raised in your previous correspondence, then we will probably want the formal positions of the various parties on those issues because, again, I think they are of some import.

We are not sure that the same would be required of the issue dealing with licences because that, to the Board, doesn't seem quite as complex based on what we have dealt with so far.

As far as the date for those submissions, when do you expect to have the Notice of Motion before us?

MR. HANNA: I believe, Mr. Chairman, I had indicated that I would try to get it before Dr. Baskerville's evidence is complete, at the end of Dr. Baskerville's evidence I would be submitting to the Board and other parties.

THE CHAIRMAN: Well, we would ask that you do it as soon as possible - we understand that you are involved here as well - simply because we would want to give the other parties as lengthy a period of time as possible to prepare their submissions, bearing in mind that there is holidays in December as well.

MS. SWENARCHUK: Mr. Chairman, I think it would be useful for us at least to have Mr. Colborne's position equally outlined for us.

THE CHAIRMAN: In a Notice of Motion?

MS. SWENARCHUK: Well, yes, I would think that both these matters could properly be subject to Notices of Motion.

THE CHAIRMAN: All right. We will request Mr. Colborne to put that issue before us by way of formal motion. We may not, however, be requesting written submissions on that from other counsel, it may

be sufficient to address that orally.

MR. COSMAN: Mr. Chairman, just one matter of logistics. I should be in a position very shortly, once the dust settles, after I announce the starting date to my clients, to tell you what the number of people we will have here for purposes of that first panel, and it might be helpful if other parties were, through your assistant, to do the same so that they can assist you with respect to the room itself.

THE CHAIRMAN: Again, we are going to have to look at where we are going to hold the rest of the sittings in Toronto and that may depend to some extent on the parties that are examining. It had been our preference to try and hold them here, if we could; that may not be possible, particularly when we have panels of witnesses in excess of five people in some cases and depending on who might be expected to attend from the public as well as the parties themselves.

I think it would be helpful if all the parties would try and formulate an estimate of how many people that they know will be in attendance in terms of support people during the industry's first panel as soon as possible and provide that information to Ms. Devaul and we will then attempt to make the appropriate arrangements, if it turns out that this hearing room

will be insufficient to hold that number.

Anything further at this time?

MS. SWENARCHUK: Have you settled on dates then for the delivery of Notice of Motion and counsels' written submissions or not?

THE CHAIRMAN: No. Well, we have asked Mr. Hanna to submit it as quickly as possible and certainly no later than the end of Dean Baskerville's testimony. At that point in time -- well, I guess we could almost set a time. We haven't seen what it encompasses, but bearing in mind what was in the correspondence we could probably set a date for the submission by the various counsel in answer to that Notice of Motion in support of it or in opposition to it.

MR. HANNA: Mr. Chairman, perhaps to help the parties in that respect, I expect the formal Notice of Motion will be, if you will, basically a formalization of what is in the--

THE CHAIRMAN: In the letter.

MR. HANNA: --in the letter, so I don't expect there will be -- at this time I don't know any other case law or whatever that will be brought in, so the basic cases that are being referenced are set out there. Specifically what the Board is being asked to

rule on is perhaps not as clearly as I might want it laid out, but I think the basic background is contained in that letter and it will be put in a formal style.

But I think it is a reasonable reference point for the parties to get an initial appreciation of what the submission will be.

THE CHAIRMAN: Well, let the Board ask assistance of counsel. Do you want the full time essentially, save a couple of days perhaps, within which to work on your formal submissions such as January the 5th or 6th or something like that?

We would like an opportunity to read the material before we actually attend on the motion itself or would an earlier time suffice, bearing in mind that we have the Christmas holidays?

MR. COSMAN: Speaking for myself, Mr. Chairman, given the time of year that it is and given the time when I anticipate I will be reading the other parties' submissions, I think several days in advance of the argument on the motion should be sufficient.

On very complex matters in the courts, as you know, an exchange of written memoranda, factum is always done a day before.

THE CHAIRMAN: All right.

MS. SEABORN: How about Monday, January

8th, Mr. Chairman, or Friday the 5th?

THE CHAIRMAN: I think Friday the 5th would be better.

MR. HANNA: Mr. Chairman, perhaps I could --

---Discussion off the record

THE CHAIRMAN: Just a moment. We have a problem of getting some of the material to Mr. Martel as well. If we get it Friday, he won't get it really prior to us coming up to Thunder Bay.

What about the Thursday, the 4th?

MR. HANNA: Mr. Chairman, just to remind the Board when we talked earlier about this matter, I did make an undertaking that I would not cross-examine Panel 17 on alternate purposes with the understanding that if the Board ruled that that was beyond their jurisdiction those questions would be inappropriate; if the Board ruled that it was within their jurisdiction, Mr. Freidin indicated he expected he would call reply evidence and it would be dealt with at that time.

Given that and trying to not spoil everyone's holidays, we might consider dealing with the matter slightly past the 9th. I don't think it's absolutely critical to deal with it on the 9th.

MR. FREIDIN: Yes, that's fine with me.

Subject to the undertaking that Mr. Hanna gave the other day, I think that's a splendid idea.

MR. HANNA: That is the first time you ever said that.

THE CHAIRMAN: Okay. Why don't we move it ahead then to --

---Discussion off the record

THE CHAIRMAN: All right. How about the 16th then, so that we will have the submissions of all of the material by the 16th of January and then we will deal with the return of the motion on probably the 18th, which is the Thursday.

Now, as far as Mr. Colborne's issue is concerned, that one may have to be dealt with at the outset of Panel 17 because I think that directly relates to 17 in terms of his cross-examination. So that we will ask Mr. Colborne to submit a formal motion to the Board by the end of next week and then we will fix a date for the return of that motion on the 18th -- sorry, on the 9th of January.

Okay, Mr. Freidin?

MR. FREIDIN: As long as -- it's going to be a pretty short turnaround time for fixing the motion if you are going to deal with it before the cross-examination starts though. The panel is only

going to take half a day.

THE CHAIRMAN: Right. Well, what is our alternative, that is the problem?

MR. MARTEL: We can meet in Sudbury.

THE CHAIRMAN: I mean, we will not be sitting after Dean Baskerville concludes, and the next time we meet is January the 9th.

MR. FREIDIN: Well, I'm not too sure -- on the assumption that no one else is raising this issue and is not cross-examining in relation to those matters, maybe what we can do is we can put off the hearing of the motion until prior -- closer to the cross-examination of the two parties who have raised it, that is NAN and Treaty No. 3. I see Ms. Swenarchuk was going to rise. I was not clear from her material whether she intended to take a position on that motion.

THE CHAIRMAN: Well, I don't think we should be separating the parties by who opposes an issue like that and who doesn't. It may affect everybody's examination to some extent depending on the disposition of the issue.

MR. FREIDIN: My suggestion then would be deal with it at the opening on the 9th.

THE CHAIRMAN: Right, and the parties will deal with that issue orally, we are not asking for

written submissions, and the Board will, if necessary, quite frankly hear the submissions, adjourn for the rest of the day and during the rest of the day formulate our ruling on that motion. We have got the time up there, if we address our minds to it, we can come back with a ruling probably that day, presuming it doesn't take the whole day.

MR. FREIDIN: I would ask, however, if counsel are going to be relying on cases they will probably know about that in advance and we could have an exchange of cases if not factums.

THE CHAIRMAN: Well, that would certainly expedite the oral presentation of the argument and be helpful to counsel. We are not ordering formal submissions, but any counsel who are going to rely on some case law, it would be in the interest of everybody to exchange those ahead of time so that everybody has a chance to consider them prior to dealing with it.

MR. COSMAN: Can you give a direction, Mr. Chairman.

THE CHAIRMAN: Very well. We will direct counsel to do that.

MS. SWENARCHUK: If those matters are concluded, Mr. Chairman, I would like some information from Mr. Freidin about exactly what he intends with

regard to further evidence on the clearcut exercise. Perhaps we could have that now.

MR. FREIDIN: I can't provide you any more information than I did last day, Mr. Chairman, I'm sorry.

THE CHAIRMAN: When will you be able to provide us with that information?

MR. FREIDIN: I have washed my hands of the matter and Ms. Murphy is dealing with it now, but one moment.

MS. SWENARCHUK: Mr. Chairman, the account that I heard of what was indicated to you several days ago was that the evidence from the Ministry would include a description of the methodology used to collect the data as well as information from Dr. Euler and Mr. McNicol, and we formally object to the inclusion of further evidence from Dr. Euler and Mr. McNicol.

I have no objection to hearing the Ministry's explanation of how the methodology was arrived at. Numerous parties here were involved in that and, at the time the methodology was developed, it was understood that various parties may have different interpretations down the line of that data.

But the entire exercise arose out of an

interrogatory filed by us and it's our submission that further evidence from Dr. Euler and Mr. McNicol, who were not involved in the collection of the data, is not appropriate and simply adds another kick at the can, as well as another obligation on the rest of us to once again consult our experts with respect to wildlife matters.

And I think surely we have heard and are hearing, and perhaps in Panel 17 will hear, enough evidence on the wildlife issue that this clearcut data collection exercise, in our view, is a totally separate issue and should not be connected to further wildlife evidence.

THE CHAIRMAN: Then how do you suggest it's going to be presented, through whom?

MS. SWENARCHUK: I haven't heard from Mr. Freidin. I think that his intention is to call Mr. Kennedy who was involved in that, and we don't object to that.

If we think there is information to add to what Mr. Kennedy says, I think we can do that through cross-examination, or perhaps we will put our people on the stand during our own case, but the wildlife issue was not part of why this exercise was begun and I think that there is no obvious connection

between the two.

THE CHAIRMAN: Mr. Freidin?

MR. FREIDIN: Well, Mr. Chairman, clearcuts I think is an issue and I would think that it would be useful to the Board to have an interpretation of the results of that exercise from the Ministry, if the Ministry feels it would be of assistance for the purposes of its case, but perhaps more importantly for the assistance of the Board.

If Ms. Swenarchuk is somehow introducing a new principle which is ownership of an interrogatory, I have never heard of it before.

The interrogatory was answered -- it wasn't answered at the time that Dr. Euler was on the stand, nor any of the other wildlife biologists for that matter. I would submit that it is quite appropriate and would be of benefit to all to have the Ministry's interpretation of the results of that, if the Ministry feels that the results can be prepared and conveyed to you, and so...

THE CHAIRMAN: Well, Ms. Swenarchuk, how are the other panels prejudiced if the evidence goes in through Dr. Euler, Mr. Kennedy and/or somebody else, if that is the necessary, with the parties having the right to cross-examine those persons on that evidence,

and presuming that the evidence is not a repetition of their previous evidence?

MS. SWENARCHUK: Mr. Chairman, the evidence has been available for a number of months, in fact Dr. Euler has appeared as a witness at least once since the evidence was made available if not more than once, and also Mr. McNicol appeared in a recent panel after this evidence had been prepared.

I don't know what the purpose is in Mr. Freidin's mind for calling those two witnesses on this particular evidence and perhaps it would help if we could have that explained.

I merely remind us all that when the exercise was undertaken there were certain agreed upon assumptions as to the methodology and the availability of the evidence to all parties afterwards. There was no specific attention paid at that time to wildlife issues as a fallout from this data collection exercise.

THE CHAIRMAN: Mr. Cosman?

MR. COSMAN: Yes, Mr. Chairman. Just very briefly. We are not dealing with the matter of evidence from a party after the party's case is closed, that is not the case here and, in my respectful submission, you should not direct a party on how or how not to call particular evidence.

THE CHAIRMAN: Well, what the Board is having difficulty in ascertaining or appreciating is where anybody will be prejudiced if they have the rights to cross-examine; that is, the other parties.

If the evidence comes in, notwithstanding it may not have been within the terms of reference when the exercise was undertaken, why will Ms. Swenarchuk's client or any other party be prejudiced if they have the rights to cross-examine that evidence presented in terms of trying to explain the issue?

MS. SWENARCHUK: Well, Mr. Chairman, first of all there is the added length of the case in the hearing; secondly, are we going to receive in advance some statement about what Dr. Euler's position is on this evidence, are we confronted with it for the first time when we hear it orally?

THE CHAIRMAN: Well, that is another issue. If Mr. Freidin wants to present it in that way, then I assume he would also be expected to indicate in advance what that evidence will consist of from those witnesses.

---Discussion off the record

MR. FREIDIN: Mr. Chairman, in terms of timing, it's still my intention to file something, but again, I can't give you a definite date but I will

speak to...

THE CHAIRMAN: Well, I think the Board is of the view that if the Ministry feels that it has to present this evidence through certain witnesses, it is at liberty to do so, provided that in the usual course a statement of what that evidence will consist of will be provided to all other parties in advance so that they will be prepared and they will have the right to cross-examine those witnesses. It will be handled no differently essentially than any other piece of evidence that is being brought before this Board at this time.

It certainly isn't after the close of a party's case, it's an issue that arose upon which other parties took exception in terms of arriving at a consensus of what a clearcut is or should be, and the Board will be prepared to hear what methodology has been discussed amongst parties.

And I presume, Ms. Swenarchuk, that there is not agreement at this time on the issue amongst parties in any event?

MS. SWENARCHUK: I'm not arguing with Mr. Freidin's desire to have Mr. Kennedy explain the methodology, that is not where the dispute lies, Mr. Chairman.

THE CHAIRMAN: I know, you are objecting I assume to the --

MS. SWENARCHUK: To essentially another panel of wildlife evidence arising out of an interrogatory that we filed.

THE CHAIRMAN: Well, the Board doesn't find anything wrong with wildlife evidence being brought in as it relates specifically to the clearcut issue and is not repetitive of the wildlife evidence already before the Board.

I assume, Mr. Freidin, that you would restrict both Mr. McNicol and Dr. Euler to addressing specifically the clearcut issue in terms of any wildlife evidence that you are going to put in front of us?

MR. FREIDIN: That's correct.

MS. SWENARCHUK: But more than that, Mr. Chairman, I would expect that their evidence would be restricted to the data that is presented through this exercise, not merely clearcut issues in general as pertaining to wildlife.

MR. FREIDIN: I think the best thing to do is to await the witness statement or the document produced and if Ms. Swenarchuk has some views at that time that somehow the positions being taken are

improper, then I think we should deal with them as a reality as opposed to guessing what they might say.

MS. SWENARCHUK: Well, Mr. Chairman --

THE CHAIRMAN: All right. And can you give us an idea when it will be forthcoming?

MS. SWENARCHUK: Excuse me, Mr. Chairman. It's not unheard of in this hearing for there to be direction as to the subjects on which evidence will be led and not led, and I'm requesting a direction that with regard to this matter, if Mr. Freidin is to be permitted to lead further wildlife evidence, then the evidence should properly be restricted to issues arising out of the data collected through this clearcut analysis exercise.

MR. FREIDIN: That's okay. I said it was going to be an interpretation of that data, and that is the purpose of doing it, so...

THE CHAIRMAN: Okay. So to the extent that the Board directs that that be so, you will prepare your witness statement in that light?

MR. FREIDIN: Yes, sir.

MS. SWENARCHUK: Now, again, Mr. Chairman, we are going to have to have this reviewed. I would appreciate knowing when the Ministry proposes to lead this evidence and how soon we will have the

statement of evidence.

MR. FREIDIN: I would ask not to -- I can speak to Ms. Murphy and I can address the Board on that matter next week.

THE CHAIRMAN: Very well, but you are doing it in as expeditiously a way as possible, Mr. Freidin?

MR. FREIDIN: Yes, sir.

THE CHAIRMAN: I think there is some urgency in getting this information before everybody else.

MR. FREIDIN: Yes, sir.

THE CHAIRMAN: Thank you. Anything further?

(no response)

Very well. Dean Baskerville, we apologize for the delay but this goes on, as you can probably imagine, from time to time throughout the course of this hearing.

THE WITNESS: Actually it was kind of reassuring, it shows there is something more complicated than trying to get a bunch of academics together at a faculty council meeting.

MR. FREIDIN: Mr. Chairman, I think we left at the break to provide me with an opportunity to

look at the document that was prepared by Mr. Hanna, and I do have some submissions in relation to it.

The bottom line is it's my submission that this document should not be presented to Dr. Baskerville and that he should not be questioned on it. I will provide the details of that, but primarily in my submission to follow this line would be contrary to the ruling of the Board in relation to whether we get into the issue of monitoring; and, secondly, in my view it goes beyond the purpose for which Dean Baskerville was called.

Now, firstly, if you look at the document it has three headings --

THE CHAIRMAN: We don't have a copy.

MR. FREIDIN: Oh, I think you should have one for the purposes of understanding my submissions.

You will see that there are three headings on that document; Criteria, HSA and Guidelines, and it's clear that it's an attempt by Mr. Hanna to list in his view possible advantages and disadvantages of those two approaches as he calls it.

In my submission, I would ask the question: How can one really talk about the guideline approach in any meaningful way in this hearing within the context of the guidelines that you, Mr. Chairman,

and the other Board members have heard about, without Dean Baskerville first knowing what all of those guidelines are, knowing how they were developed, knowing in detail what is in them, what support there is and what evidence there has been as to the support those guidelines have in terms of, firstly, detailed and intensive monitoring programs which you have heard about, training programs for their interpretation, and application. In my submission, without knowing all of those things it is a hollow exercise to ask for the comparison.

Secondly, I think Mr. Hanna at one point said that he could put the questions to Dr. Baskerville hypothetically and, in my submission, if one looked at this document and one looks back at the short examination that has taken place in relation to item No. 2 already, that the examination would be far from hypothetical.

If you will look at item No. 2, go across to the right-hand column, Dean Baskerville will be asked to indicate whether -- or agree that guidelines have no explicit linkages with any DLUG targets. What information does Dean Baskerville have about that and, in my submission, without knowing all the evidence that has gone before, he should not, and I would submit it

would be unfair to ask him to comment on that.

Go to item No. 8, or let's deal with item No. 10, the same column: Efficiency of timber management plan reviews, the item is: Significant potential for confrontation and adversary between MNR, forest industry and the public. Dean Baskerville has indicated that he did not examine how the actual planning teams which now in operation worked. Without the information and reviewing the extensive evidence on that, I think it would be unfair to put the questions to him and without that, in my respectful submission, the evidence obtained would not be helpful.

Item No. 11 specifically asks him to deal with, in the right-hand column: Effectiveness monitoring is difficult and expensive. Well, what effectiveness monitoring is that, if it's not the effectiveness monitoring that the Ministry of Natural Resources dealt with in Panel 16 and which you, Mr. Chairman, indicated was not to be the subject matter of this hearing, or of this particular evidence

I also have some concern that by listing the headings the way Mr. Hanna has he has somehow set up a polarization as if there are two options and two options only. I would submit that there has been all kinds of evidence that there is a continuum and

progression from one type of management technique to another. And to have a cross-examination somehow indicating that these are the options and the only options would be unfair.

And just to finalize, in terms of being unfair, for the reason I have indicated, I have indicated that without all of that evidence it would be unfair to put Dean Baskerville to the task of dealing with all of these matters and, for all of those reasons, Mr. Chairman, I would submit that these questions not be put to Dean Baskerville either orally or in the written form which I agree, should the questions be asked, might have been an interesting way of doing it but, in my submission, either way is improper.

THE CHAIRMAN: Any other parties have submissions?

Mr. Turkstra?

MR. TURKSTRA: I'm not exactly party, Mr. Chairman, but there are two comments I would like to make on behalf of Dr. Baskerville. And if I can put it in the context that in the same way that Dr. Baskerville is today being faced with what he has previously written in terms of being cross-examined, what he is being asked today is being taken down and he

could very well be faced two years from now or next year at another hearing with the evidence he gave here.

So that my only submission is that he not be prevented in any way from being able to complete the statement of an opinion in any fashion that would leave that opinion to appear on the record as something other than what he may actually hold the Board, and I raise that in terms of the issue of monitoring, because it's clear that Dr. Baskerville has in testifying about adaptive management referred to the issue of evaluation, and it is seen that even in the questions from the Board that the comparison of what he means by evaluation with what is commonly meant by monitoring or effects monitoring, is a part of understanding what he's telling the Board.

The second thing is, I spoke to Dr. Baskerville at the break about the use of the word guidelines and there was in his work in the audit presented to him - and you can perhaps, if you wish to have that clarified by evidence - guidelines were presented to him, and I think Mr. Freidin is right that if the questions are to be put, from Dr. Baskerville's point of view, the question: What are we talking about in terms of guidelines, he was given guidelines and I can tell the Board from his perspective that means -

Dr. Baskerville, correct me if I'm wrong - a 10 or 20-page booklet on moose guidelines for example.

Do I have that correctly?

THE WITNESS: And one on the silvicultural characteristics of each working group, yes.

MR. TURKSTRA: So the word guidelines has a meaning to Dr. Baskerville that relates to his audit.

Now, as Mr. Freidin has said he hasn't been here to talk about or listen to all the other material about guidelines, but I think everybody should understand that he has a meaning of guidelines attached to it based on his experience during the audit, and I wanted to bring that to the Board's attention.

THE CHAIRMAN: Well, thank you, Mr. Turkstra. I think, again, part of the Board's concern is the fact that Dean Baskerville has not been here to hear the many months of evidence in terms of all kinds of existing documents that existed at the time of his audit, but there has been a lot that's changed since then and obviously the environmental assessment before the Board for approval contains a number of suggestions in terms of amending existing guidelines and all kinds of other documents that find their origin in suggested conditions of approval put forward at this point by the

Ministry, as well, of course, as the testimony of all the various witness panels that we have heard to date.

And we are somewhat concerned over not putting Dean Baskerville into the position of having to answer questions based on what he knew about in 1986 when he conducted the audit, but which have the effect of rendering an opinion on supposedly what is occurring today or will occur in the future, but the information base may be totally different, or has been substantially changed.

And the value of that kind of opinion really doesn't help the Board a lot because we are, in effect, looking at a substantially different application from what he looked at in 1986.

The real purpose, Mr. Hanna, of having Dean Baskerville here, which is what the Board wanted to do from the outset, was to have him further explain and clarify his audit in 1986 and the response to that audit which was put out by the Ministry shortly thereafter. And also the Board was prepared in accepting the undertaking of the parties not to call Dean Baskerville as their own witness, to let him roam slightly farther afield than that and deal with some of his theories that are projected in his writings in terms of things like adaptive management and comments

on habitat supply analysis, et cetera.

But we did not want Dean Baskerville to really venture into the area of trying to compare what he believes should be the case and what has been presented to us in terms of this application, because the problem therein lies that he has not heard 19 months' worth of evidence nor has he reviewed the evidence in that fashion.

MR. HANNA: Mr. Chairman, I think I will respond first to your statements then I will respond to Mr. Freidin's statements.

First of all, with respect to Dean Baskerville's difficulty in dealing with 19 months of evidence, I submit to this Board that any witness that comes forward at any point in the hearing as we go along faces the same problem, every witness is faced with trying to understand and trying to distill out of whatever evidence has gone on before those elements that are relevant to their evidence, and so that I say --

THE CHAIRMAN: No, but just a moment. You have to realize that the Board called this witness, it is the Board's witness and the Board gave certain terms of reference through Mr. Turkstra as to what this witness would deal with, and those terms of reference

did not include reviewing 19 months' worth of evidence.

MR. HANNA: Correct, Mr. Chairman, but it was my understanding that the Board's terms of reference did include the statement of issues of the various parties and it's very clear in our statements of issues on page 3, item 3, habitat supply analysis is one of the items that we wish to discuss with Dean Baskerville.

And I submit to this Board that in order for us to have an intelligent discussion with Dean Baskerville on habitat supply analysis, to not look at the guidelines simultaneously would lead to a shallow and totally ineffective evaluation of the two alternatives, it's only by comparing those two and by obtaining his views in that respect that we would be able to take advantage of his opinions.

THE CHAIRMAN: He has not looked at the guidelines that are before this Board.

MR. HANNA: Mr. Chairman, it is my submission to this Board that the guidelines that have been brought before this Board, and I'm speaking now very specifically, just so it's very clear on the record - and this was, so the Board can appreciate, was not my intention originally to enter this.

There was a much larger document that was

behind this and whatever, but it dealt exclusively with moose habitat guidelines. That is the focus and discussion that I wish to enter into with Dr. Baskerville with respect to guidelines. The moose habitat guidelines have been brought before this Board are dated 1988, but I believe in the evidence that has been brought forward that the guidelines for all intents and purposes have been in effect since or at least have been around since 1976 and that the revisions to them have not been of great substance, at least not since 1986 when Dean Baskerville did his audit.

And so that in fact the guidelines that he's familiar with in terms of moose habitat are the same guidelines that this Board has before them.

Mr. Chairman, I would also note to you and say this with considerable concern; and, that is, when I gave the undertaking to the Board of not calling Dean Baskerville a second time, it was with the understanding that we would be limited in terms of redundancy and relevancy of the cross-examination. If we had called Dean Baskerville as our own witness, it would have been our intention to have provided him with as much background information as possible that he would -- we would do the distilling and provide him

with that information in order that he would be properly prepared to at least deal with those matters that we would have called him on.

I did undertake to do that to a certain extent, I did forward information to Dean Baskerville and now due to miscommunication it may not have received the same degree of attention that would have if he had been our witness and we had dealt with him directly on it, but I certainly attempted to do that and I feel that my client is being very prejudiced at this point by the fact that we had every intention of calling Dean Baskerville, and that was the reason I brought it before the Board, in the event that his evidence was limited.

We are now being told you cannot even cross-examine or it's being suggested that we may not be able to cross-examine on matters that have been identified in our statements of issues, that have passed the scoping test, and are now being told that those are inappropriate questions.

I feel that I have been severely prejudiced in this matter and that I feel that the prejudice is such that the undertaking I have given to this Board is in effect invalidated.

THE CHAIRMAN: Well, we haven't made any

ruling yet, Mr. Hanna, so don't jump to conclusions prior to us actually rendering a rule on it.

Mr. Freidin, with respect to the moose habitat guidelines, the ones that Dean Baskerville actually reviewed in 1986, they are substantially the ones that are in effect today, just for the moose habitat guidelines?

MS. SWENARCHUK: Mr. Chairman, could I interject a comment here. It seems to me that there are a number of ways in which the matter could be accommodated, and I do think it's proper to give consideration to the position of the Federation of Anglers & Hunters and the fact that they did have an intention to call Dr. Baskerville and they are attempting to cover now those areas that they would have otherwise covered with him.

The first is, when I look at this paper and see HSA and guidelines, first of all I disagree with Mr. Freidin's position that there is something inappropriate about setting up these two systems as if they are the only ones; it seems to me that any party here that wants to contrast a proposed system to the one that is now in effect is entitled to do that and the rest of us needn't conclude that those are the only two possibilities.

But in the Federation's establishing these two possibilities in contrast, I think there are a couple of ways that it could be dealt with. The first thing is that if we think back to Panel 10 for example, and the subsequent panels, we have talked here about potential effects rather than actual effects and it seems to me there may be a way of looking at these two approaches to management almost in a theoretical way; one is habitat supply analysis, another is the application of a guideline constraint approach. And that in itself would not require that Dr. Baskerville be acquainted with all of the evidence that has been led.

THE CHAIRMAN: So you are looking at it generically?

MS. SWENARCHUK: That is one possibility.

THE CHAIRMAN: Essentially as opposed to examining in detail specific guidelines.

MS. SWENARCHUK: Yes.

THE CHAIRMAN: And specific provisions of specific guidelines.

MS. SWENARCHUK: Yes. Now, that might raise a difficulty with regard to something as direct as whether or not there is a linkage with the DLUG targets, but I think that kind of difficulty would only

arise in that case that I can think of and no others.

That would be the first suggestion that I would make, because we do support the Federation's position that this discussion would be useful for the Board.

The other possibility would be that if we are all understood that the only guideline in question here is the moose habitat guidelines, and that the others that we have all heard about at length are not really part of this discussion, then our position would be that Dean Baskerville is sufficiently -- that Dr. Baskerville, having reviewed predecessor to the current guidelines at the time of the audit would be entitled to compare their approach to the HSA approach, again without going through the specific details of those guidelines, and as I look at the outline here, I think the details, the extent to which for example the number of hectares has been changed in the guidelines from one to the other, really does not enter into the discussion.

We are really talking about the differences between one management approach and the other and on a fairly theoretical level and, in our view, it is a useful discussion to undergo.

Again, given the Federation's particular

position with regard to Dr. Baskerville as their potential witness, we would support an order that would permit them to go through this exercise.

Another possible practical --

THE CHAIRMAN: Just a moment, please.

---Discussion off record

MS. SWENARCHUK: We were just going to suggest, Mr. Chairman, given the hour --

THE CHAIRMAN: What about the issue raised with respect to dealing with effects monitoring, that is one that we specifically indicated that we do not want Dean Baskerville to deal with because of the extensive program put forward by the Ministry to which he is not privy to.

MR. HANNA: Mr. Chairman --

MS. SWENARCHUK: I very clearly disagree with Mr. Freidin's position on that.

THE CHAIRMAN: Sorry.

MS. SWENARCHUK: I very clearly disagree with Mr. Freidin's position on that. I do not think it is at all essential in comparing these two methods to evaluate the Ministry's proposal to effectiveness monitoring. The statement simply says here that one has a high potential for effectiveness monitoring and the other says that it's difficult and expensive.

Now, at a theoretical level I think those two concepts can be discussed.

THE CHAIRMAN: So again dealing with it generically?

MS. SWENARCHUK: On that issue.

THE CHAIRMAN: But not getting into any details of the effects monitoring in terms of what was put before the Board.

MS. SWENARCHUK: Agreed.

MR. COSMAN: Mr. Chairman, I would certainly support it on that basis as well. There is no question, as a matter of general principle, that a witness can't answer something that he is not qualified to answer, so obviously if this witness is not familiar with the February, 1988 moose habitat guidelines he can't answer that question.

But in terms of an approach, a generic approach as has been suggested, I would submit to you that that should be allowed.

MR. SWENARCHUK: Mr. Chairman, we just have the practical suggestion that if it would be at all useful perhaps Dr. Baskerville could be given the guidelines to review at his leisure this evening, given the hour now --

THE CHAIRMAN: Well, do you want to --

MR. HANNA: Mr. Chairman --

THE CHAIRMAN: Just a moment. Please, sit down. We want to determine firstly as to what is going to be the scope of the examination before Dean Baskerville goes away to review anything. It may well be that he won't have to review anything because, for whatever reason, we won't allow it.

MR. HANNA: Mr. Chairman, I would strongly recommend that Dean Baskerville not review the guidelines. I have no intention of going through with him his opinion whether he thinks it should be a hundred acre clearcut, or 110 acres or the shelter patches should be three hectares or 10 hectares. That is not my intention in any way whatsoever.

THE CHAIRMAN: All right. Mr. Hanna, are you prepared, before we decide where we going to go on this issue, are you prepared to deal with it at a conceptual level?

MR. HANNA: Certainly, Mr. Chairman. I would, however, though wish to deal with one matter that has come up and that is this matter of the effectiveness monitoring program.

THE CHAIRMAN: Well --

MR. HANNA: I have no --

THE CHAIRMAN: Okay, continue.

MR. HANNA: I have no intention of asking Dean Baskerville to undertake a detailed review of an effectiveness monitoring program and to render his opinion as to whether or not it scientifically should be redesigned or whatever; however, and it is my submission, that throughout Dean Baskerville's testimony here today -- not today, yesterday that he has spoken repeatedly on the matters of effects monitoring as it relates to adaptive management.

And I would also submit to the Board that as part of the response to the action plan which is part of Exhibit 4, specifically I believe it's item 12 and I can confirm that -- excuse me, it's item 10, in MNR's action plan.

I'm looking at Appendix 7 of the Class EA that that is an integral part of the Ministry's response, it's a response to the very specific recommendation that Dean Baskerville made in terms of the need for quantified and measurable objectives for non-timber values. I believe in the Board's original order, notwithstanding any of the objections that we have made in terms of the scope of that order, that that falls clearly within the scope of evidence that the Board ruled on originally with Dean Baskerville's evidence, it was certainly part of his audit, certainly

part of the statement of action response.

THE CHAIRMAN: But, again, are you going to deal with effects monitoring on a conceptual level, or are you going to deal with effects monitoring in terms of the specific proposals with the details thereof as put before the Board in the last panel?

MR. HANNA: Only inasmuch as this, Mr. Chairman. I believe Dean Baskerville has made reference to and I believe he has done it as tactfully as he can with some criticism of wildlife biologists in terms of their lack of focus on key elements in terms of wildlife response to forest management.

He has given that in his evidence-in-chief and I would like to follow up on that inasmuch as it is my submission it would be a matter that I would like to explore with Dean Baskerville, as to not the details in terms of exactly how the plan is set up and that sort of thing, but the principles, the variables that are being - how should I say - that are being identified, thus in terms of the way that he structured his evidence in terms of adaptive management, the sensitivity analysis, the system, how to get that feedback, those types of relationships he has presented his evidence-in-chief and I have no way to deal with that except through cross-examination, and

it is that level that I wish to deal with them.

THE CHAIRMAN: Well, you can certainly cross-examine him on matters which arose in his evidence-in-chief, that is a right that we are not going to constrict, provided that you don't go into specific questions related to the specific effects of the monitoring program put forward by the Ministry in detail in the last panel.

MR. HANNA: Fine. I think I can agree to that, Mr. Chairman. It's not my intent to ask Dean Baskerville to read all the transcript for Panel 16, to look over witness statement, that sort of thing.

If any of the questions would be of that nature, would be sufficiently generic that he would be able to look at one question and put that in context and make an answer. So in that sense, it's very generic.

THE CHAIRMAN: Mr. Freidin?

MR. FREIDIN: Just, I might be able to diffuse this. After listening to the submissions, I can advise you that I would withdraw my objection, if that is the right term, if the direction is as you have given in relation to the monitoring issue. I accept the submissions made by Ms. Swenarchuk in relation to some of the specific issues like District Land Use

Guidelines, dealing with it basically along the lines as discussed.

THE CHAIRMAN: On a generic basis?

MR. FREIDIN: On a generic basis.

THE CHAIRMAN: On a conceptual basis?

MR. FREIDIN: That's right.

THE CHAIRMAN: As opposed to the detail, you know, a review of the detailed proposal put forward by various panels over months of presenting the case.

MR. FREIDIN: And as indicated by Mr. Hanna, the reference to guidelines is reference to the moose guidelines and, yes, Mr. Chairman, I can answer your earlier question that the guidelines that he did review, although training hasn't taken place, that it wasn't provincially applied in any consistent way or there was no program in place to do that, they were nonetheless substantially the same.

THE CHAIRMAN: All right. So if we have --

MS. SWENARCHUK: Mr. Chairman, could I just make one more submission.

THE CHAIRMAN: Yes.

MS. SWENARCHUK: Because I'm not clear yet on whether there has been some agreement over the effectiveness monitoring issue.

It would be my submission that it would be an entirely proper question to ask Dr. Baskerville what, in his view, would be the necessary components of an effectiveness monitoring scheme under --

THE CHAIRMAN: In his view of any effectiveness monitoring scheme.

MS. SWENARCHUK: Yes, exactly.

THE CHAIRMAN: No problem. That in our view is dealing with it conceptually as opposed to looking at the specific program put forward before the Board and then asking him to comment on that.

MS. SWENARCHUK: One more further comment and, that is, that we are not exactly clear what Mr. Hanna's definition of habitat supply analysis is, and it would be helpful for us, because we understand there are various versions to the use of that term, if that could be clarified.

THE CHAIRMAN: I think that would probably be helpful to the Board as well.

MR. HANNA: Mr. Chairman, I'm willing to live by the definition that Dean Baskerville presented when I asked him earlier this afternoon what he meant by habitat supply analysis, and if you wish we can have him --

THE CHAIRMAN: Is that sufficient for

your purposes, Ms. Swenarchuk, or do you want that repeated by Dean Baskerville?

MS. SWENARCHUK: It would be helpful to ask to have it repeated.

THE CHAIRMAN: All right. Just one second, Dean Baskerville, before we go to that.

Does that complete the objections, Mr. Freidin, with respect to this document, and if the Board directs that we deal with the topics of guidelines and effects monitoring on a generic conceptual basis with perhaps, if necessary, more specific questions relative to the moose habitat guidelines only if such should arise because these were essentially the guidelines in place during the course of his audit in 1986, are you basically content with that?

MR. FREIDIN: I think so, yes. But I understand it will be focusing on the moose guidelines. That was Mr. Hanna's intention.

THE CHAIRMAN: Yes. No other guidelines, Mr. Hanna, we are talking only of those guidelines if there is going to be any focus on any guidelines at all.

MR. HANNA: I have no problem with that, sir.

THE CHAIRMAN: Does this, by the way, constitute the bulk of your examination, the remaining part of your examination?

MR. HANNA: On habitat supply analysis, Mr. Chairman. I think, if you look at our additional issues, there is still a number of additional issues. There are some points of clarification I still want to go through in terms of Dr. Baskerville's evidence-in-chief. There are a number of matters still that I have before me, yes.

THE CHAIRMAN: Okay. Well, okay. I think we will proceed on that basis with this document. We will continue, Dean Baskerville, now with a recap of your definition of habitat supply analysis for the benefit of the Board and the parties, and we will proceed on until 5:00 p.m. today.

MR. HANNA: Thank you, Mr. Chairman.

MR. TURKSTRA: Do you want to mark this as an exhibit, Mr. Chairman?

THE CHAIRMAN: Yes. We might as well mark this as an Exhibit 976 I believe.

---EXHIBIT NO. 976: Document prepared by OFAH re: comparison of guideline approach and habitat supply analysis.

THE WITNESS: Mr. Chairman, would it upset the apple cart if I made a general statement or

is that better to work in as appropriate?

THE CHAIRMAN: Well, we are going to base it on your definition in terms of -- since that's what Mr. Hanna is going to rely upon, so however best you think you can explain it, I think you should go ahead in your own fashion.

THE WITNESS: I meant with respect to the very issue of guidelines, formal management and that sort of thing. I am prepared to work it into the answer to a question, if that's more appropriate.

MR. HANNA: I'm quite happy to have -- Dean Baskerville is a very experienced witness, he obviously doesn't need too much direction in questions. I am happy to hear him say it in his words.

THE CHAIRMAN: No, but I think he is asking whether he should be responding to a specific question. Is that what you are asking?

THE WITNESS: Yes. I would be responding to what I've just heard, rather than to a particular question.

MR. HANNA: Mr. Chairman, I think it is more expeditious, he has seen this...

---Discussion off the record

THE CHAIRMAN: No, okay. Excuse us. If we understand you correctly, Dean Baskerville, are you

asking: Would you like to proceed now with an explanation of what you consider to be the comparison on a conceptual basis between habitat supply analysis and the guideline approach, is that what you are...

THE WITNESS: If not that, at least the important issues in it, yes.

THE CHAIRMAN: Okay. Are you content with that, Mr. Hanna?

MR. HANNA: Yes, Mr. Chairman.

THE CHAIRMAN: Without going through these items, item by item. I think --

MR. HANNA: Yes, provided that there is not something that is missed in his general discussion, but certainly to expedite this discussion, if Dean Baskerville could proceed through it quickly, I am looking any way we can to make this go quickly.

So I will certainly take his direction if he feels he can do it expeditiously.

THE CHAIRMAN: All right. If you can --

MS. SWENARCHUK: Can we have the definition first?

THE WITNESS: Yes. I think what I --

THE CHAIRMAN: Excuse us a moment.

---Discussion off the record

THE WITNESS: I used this, it was item

71 -- slide 71 in what I used yesterday, and what I had suggested was that if this was the basis of a timber supply analysis, a characterization of an initial forest by an age-class structure and a yield curve, and that a harvest schedule removed stands from this forest and a treatment schedule took those cut-over areas and assigned them essentially to different yield curves in the future, that that action of harvesting here (indicating) and sending those curves on different -- sending the cut-overs on different developmental patterns, the stands that would develop on the cut-overs would be different for volume, that difference also made a pattern change in the forest in that that pattern change would reflect, for instance, if we put in a species called Guild 1 here that required earlier stages of succession and later stages of succession in certain amounts, that if we could forecast timber supply by applying a harvest and treatment schedule to a forest, by analogy you can forecast availability of habitat by simply putting in an appropriate number of habitat yield curves, if you will.

And what you would come out with down here at the bottom, instead of just how much volume was harvested, just what you would come up with from a

timber supply analysis, that you could come up with population levels for whatever habitat availability or population levels whichever, however distant, complicated you made the model, given those yield curves for the habitats.

So it is simply an analogue, direct analogue of timber supply analysis replacing a single or a group of volume yield curves with a group of habitat requirement curves for guilds of species, featured species or individuals. Is that...

MR. HANNA: Q. Dean Baskerville, could I just ask you: And the same principles of adaptive management would apply in that case also in terms of meeting measurable objectives, cause/effect linkages and feedback into your system?

A. The description that I've given here would permit that, yes. It facilitates it; it doesn't require, but does facilitate.

It just, Mr. Chairman, occurred to me that our discussions so frequently get to the polls and that we can argue that formal management won't work because it is data hungry, requires great skills and so on, but some will say it will work, and we can say that guidelines won't work and some will say that guidelines will. And I just can't agree that that's a dichotomy.

If I could, the guidelines are a codification of expertise, somebody has sat down and said: Given what people who have observed moose see over a long period of time, have concluded about their habitat requirements and about their response to changes in those habitat requirements, here are some guidelines on things not to do and things to do.

They have the big advantage that they sensitize a bunch of players to issues that they would not otherwise be sensitized to, they provide a neophyte with access to some of the accumulated knowledge, players who have been around a while. In the context that I have ever seen guidelines, they would not provide a formal forecast to test. So there's both sides.

A formal management process where you choose a goal and try to design actions to close on that goal can give closure, but only if it's designed thoughtfully and only if it's implemented as per the design.

So that I would be really upset if anyone thought that either of those approaches was absolutely guaranteed safe from human frailty, they aren't; whichever one you follow will involve human interpretation and there will be problems as a result.

It seems to me that a concern that is more predominating would be that in terms of the practical reality on the Moosonee Management Unit or whatever management unit, what approach somewhere along a continuum can be initiated now in this forest for the database that exists, for the people skills that are available to handle data and interpret it, and for the availability of our access to the tools to implement whatever planning process you have.

So it seems to me an issue of importance here, rather than to try to choose on a dichotomy, would be rather to ask: How do we start and how will the approach, whatever it is you use to start, how will it evolve, and is there some mechanism built in to force evolution.

Those to me would be more relevant questions than is one approach better than the other. I would hope that neither one would be frozen. Now, I hope that doesn't reopen your can of worms, sir.

THE CHAIRMAN: No, I think that's a very practical analysis of the kinds of problems that are facing this Board in the sense that we have a system in place and it may have adopted a certain methodology and may be moving towards another methodology.

How do you integrate the two and how do

you do it in a way that is feasible without necessarily dismantling entirely an existing system to replace it entirely by another system, those are the problems, and to what degree and how do you go about it is much of the subject matter of this hearing.

THE WITNESS: Don't take off your life jacket until you're sure that you've learned to swim.

THE CHAIRMAN: It is probably good advice.

MR. HANNA: Q. Dr. Baskerville, I concur with the Chairman in terms of your analysis. I guess the problem I have - I am trying to put this in the context of these hearings - can you practise both at the same time?

And perhaps, could I say, wouldn't they both -- what is the potential of them leading to conflicting prescriptions for the same piece of land?

A. Possibly, Mr. Chairman, at one time I believed that science could somehow or other organize all the data that one would need on a resource, you could go to the manager, the decision-maker, present him with this, come to a conclusion, and he would go away and do it, and the scientist would go back to the proverbial bench.

I became disabused of that view rather

forcefully in the exercise I referred to yesterday in the budworm modelling thing. In fact, I believe the essential thing is to start, to start in a way that minimizes, as I said earlier today, the risk of option foreclosure and to start in a way that makes the best use of available knowledge and to start in a way that causes the manager, the chooser, decision-maker, causes him to learn in the most effective way.

Now, if it isn't clear, what I would argue is that I would, no matter how elegant a management scheme I had to initiate, I would begin by using guidelines. To be blunt, because it's is easier in the timber side, we do not know or cannot characterize before a stand is harvested consistently how it will regenerate; yet, everything -- if we know how it is going to be cut, all of them, we should be able to if we understood the thing completely.

So the result is we use certain guidelines that say a certain percentage of these kinds of stands are expected to regenerate well, a certain percentage won't regenerate, and we will need treatment and so on, and we use guidelines to describe what those might look like to make our initial exercise and to focus our attention to discriminate between those as quickly as we can in the field, because our ability to

adjust on the ground to the reality will have a major influence on our -- on how we do.

The more you learn, the less you will rely on that kind of a rule; and the more you will make it a quantitative thing that becomes more testable, in fact, you will even try to state those as testable measures early.

The second part of the question I believe was: Are the two conflicting, are the two approaches conflicting. They are conflicting it seems to me or there is at least a potential for conflict in that one provides an explicit test of whether or not you are reaching the goals and why you are or are not; and the other provides only a casual, not a very precise evaluation of whether or not you are reaching the goals.

And what one should be careful of is stating a goal that says: I will have one moose per 10 square kilometres and then enforcing a set of guidelines and imagining that in fact you have captured in that all of the necessary insufficient cause/effect mechanisms to make that one happen, that one moose per 10 square kilometre. And even if you don't, you haven't got a mechanism in there that causes you to search for why you didn't get it. That's the

distinction between the two.

If it's a conflict, it would be the potential for conflict to arrive at an objective using guidelines that you couldn't be sure you could reach because you had never made a formal forecast to test it, as opposed to making a formal forecast with a management approach that allowed you to say that these actions should lead to that, and you could have conflict I think between -- at the objective level.

THE CHAIRMAN: But would you have conflict at the prescription level?

In other words, with the guidelines you are going to have precise prescriptions that are going to apply to a piece of land; is that going to conflict with what you would otherwise prescribe for the same piece of land were you using the more formalized management system?

THE WITNESS: The crucial distinction here is that by nature the application of guidelines will be to walk into a stand and decide that stand; whereas the approach of looking at the full spectrum does not take the stand out of the forest context and say: What should I do with it, it says: What stands should I treat in a forest context and then goes to look for the stands to make those treatments. The

context is quite different.

If you apply guidelines, you cannot at the time you are applying them on one hectare in the human mind comprehend what the impact of that treatment at this location has on the whole forest level production. The other end, the other approach starts at that and says: To achieve this goal, what actions do I take. They come from different ends of the same problem.

THE CHAIRMAN: But they may not necessarily be in conflict?

THE WITNESS: No. And, in fact, as I said, an ideal approach would start with whatever knowledge base we have now, and however you want to call that, what it is going to wind up as is the guidelines of the Rob Galloways who've spent a lot of time on this particular kind of forest and have a feel for it and they are going to write down for the younger fellows: Here is some treatments that work, and then you want to move as quickly as you can to assessing those and making them more repeatable prescriptions and more repeatable forecasts so that you can initiate a response that you are looking for in the forest.

MR. HANNA: Q. Dean Baskerville, I am confused by your example with Mr. Galloway, and

certainly I understand -- not by that, because Mr. Galloway has been here and we've heard him and he has provided evidence.

It is rather that you are speaking here now, it seems to me, talking about silvicultural guidelines and not habitat guidelines. That's what I heard you just saying, and I just wanted to make sure of that distinction, because I understand what you are saying from a silvicultural guidelines point of view, but this line of questioning was not to deal with silvicultural guidelines but habitat guidelines.

A. I agree, and I guess what I was trying to do was lead to the idea that to get started 10 years ago the kinds of guidelines that existed for jack pine, red pine and black spruce were absolutely essential.

But I would be surprised if you went and talked to unit foresters that there was the kind of persistence in holding on to those today that there would have been 10 years ago simply because they will have learned themselves and there are systems emerging that are causing them to test reality against those things and to make better forecasts.

It is easier to see there, but the principle is identical. I don't see a difference

between saying that I will use a set of guidelines for silviculture to make a forest over time appear so that it will be good habitat for a pulp mill, than to use a set of guidelines to make a forest appear over time as a suitable habitat for moose. I do not see the distinction between those two.

Q. Okay. You mentioned that with the guidelines you are talking at the stand level, with the habitat supply analysis approach you start at the forest level?

A. Exactly, that's a fundamental difference in the two.

Q. Now, the question that's in my mind here, I think what you are saying, practically you can't change the world overnight, and I think your audit was very blunt about that, that it was designed for provoking thought rather than necessarily a knee-jerk reaction.

Now, what I am concerned about here is what direction should we be moving in. I understand what your point is, we can't dismantle everything at the present time and undo everything that's done, but what direction should we be moving in?

A. It would be trite to say you should be moving in the direction that gives you what it is

you want, and I want to be careful that I don't tell you what it is you want when I am telling you what direction to move in.

If it were me, if the desire is to produce a certain number of moose on a unit area, a management unit, then my reaction would be: I know that the moose obviously are related to the habitat, that there are some people who have looked at this and when they use those guidelines and convert them as quick to start and convert them as quickly as I can to something that allows me to forecast habitat availability, both temporally and spacially, because I know that's what the moose is reacting to.

And the sooner I am in a position that I can say: This pattern is related to this kind of a moose population level, the sooner I am going to be able to regulate moose, because you need the other tools as well, control of harvesting, to make available to the moose a consistent habitat for a certain population level.

MR. MARTEL: Would you want the material -- we talked about this morning the GIS and so on, but you are trying to do all these things simultaneously, gathering that data, trying to start them where we are now and convert or move to a more

adaptive way as we progress over, let's say, one might consider it as a term that says, you know: You have got to gather this, and you have got to do this over the next 10 years even though it's a five-year thing, but indicating that that's the direction the Ministry should be moving.

THE WITNESS: If I could convince the Ministry to start all at once, I think I could assure all of our graduates jobs for the next 10 years.

If you think about the guidelines that have been presented to you and ask yourself how much of the moose guidelines as they were presented related to geographic pattern, how much of it had to do with the size of an opening and with the contiguity of the next opening, how close is the next one and how soon can it become a contiguous opening. You will find that a substantial amount of that had to do precisely with geographic pattern, then the answer is yes, if in a perfect world I'd have myself a GIS immediately and begin looking at that.

On the other hand, I think you will discover, as we have in the timber part, that if you make the jump you will find that the characteristics that you enter into the GIS aren't really what the moose reacted to. And the first step -- you can make

one learning step before you do, and that one learning step is an important one, think hard about what characteristics of habitat the moose are reacting to before you spend the money of entering that.

It isn't necessary to have a GIS at the front end; if you want to get good fast, it is necessary to have one fairly soon, within 10 years.

MR. MARTEL: The rest ties in. I think you went on to say though, using these existing guidelines, where we are starting from and moving towards - without trying to throw the baby out with the bath water - moving towards a different alternative.

THE WITNESS: Yes. If you have the GIS, one of the neat things that's possible is that you can, because you know how to forecast stand development, forecast ahead in time.

It's not a really difficult problem to make a map sheet and say: There is the state of the forest now, five years later all of those stands will have aged five years, so their stage of development will look like this. And you can create a new map and another one and another one and another one, and you can have someone sit down and apply moose guidelines to those maps. Actually, over time we have done that. It is kind of an interesting exercise in terms of

sensitizing one to the kinds of issues you should be looking at.

I guess what I am trying to say is, that there isn't one -- I wouldn't try to do it all at once, it is a learning process and you need the learners to learn at their pace.

THE CHAIRMAN: Okay. Can we capsulize what you said in the following summary, to the extent of saying that in order to get where you would like to see the management system develop to in the future, you can utilize the guideline approach as a start, develop a GIS system as quickly as is feasible in terms of how soon you can get the data in and train the people who have to use it to use it properly so that the output is meaningful, and then slowly over time, as you have more and more experience, move towards managing more at the overall forest level as opposed to concentrating at the stand level which is where a lot of jurisdictions, including Ontario, probably started from and are someplace on the continuum. Is that a fair sort of summary?

THE WITNESS: That's a fair summary. I think that you need a point of departure and that point of departure had best be the best available current wisdom which is what guidelines are.

You need to move not just to something like the GIS that gives you geographic pattern, but you need to move as quickly as possible to a functional response relationship of populations to habitat structure. That's the piece, that is the crucial piece that's missing at this point. And the time, you said slowly--

THE CHAIRMAN: Well...

THE WITNESS: --I would say move as rapidly as the skill level at the unit permits.

THE CHAIRMAN: I guess what I meant is you can't go do it overnight, it is going to take some time.

THE WITNESS: Yes.

THE CHAIRMAN: But move ahead.

THE WITNESS: Not forever though.

THE CHAIRMAN: No, move ahead as quickly as possible.

Now, one other sort of basic question. Is it possible to do that, in your view, to move along that continuum to what you consider to be the appropriate ending point if you are working off of different land bases; in other words, if the wildlife land base is not synonymous with a management unit land base?

THE WITNESS: And your question was: Is it possible?

THE CHAIRMAN: Is it possible, given that imperical fact, that's the way it is, how do you go about changing that? Is the way to change your land bases, or can it be done in some fashion retaining the different land bases that might exist?

THE WITNESS: It is within the realms of possibility that a couple of -- maybe a few clever people who communicated well with each other could indeed pull this off where the land bases were not conformable, but I would consider that highly improbable; improbable because you've got a bureaucratic distinction between who they report to and their reporting structures, you have got a philosophical difference in the way they view the forest, you've got a separation in space of the individuals and all of those things will reduce their willingness and chance, their capability to interact.

THE CHAIRMAN: Okay. And one further question arising from that. Will that, in your opinion, mess up the formulation of a GIS system if the data going into that system is derived or applicable to the two different land bases?

THE WITNESS: One of the pleasures of

these kinds of systems is that that wouldn't be a problem. The easiest way to think of is, if I put in a map that has nothing but roads on it, if I put in a map that has nothing but type lines on it and I put in a map that has nothing but the habitat on it, and what the system allows me to do is to drop any two of those, or three of those and make one map out of them.

So that you can actually have the different views of the forest, called themes, and the big value of the system is it allows you to overlay themes and create a whole new picture of the forest, you get a new set of polygons.

THE CHAIRMAN: Thank you.

MR. HANNA: Q. Dean Baskerville, you indicated that you use the guidelines because they currently represent the best professional knowledge at the time. That best professional knowledge would also be applied in developing your habitat supply analysis; would it not?

A. Yes, to build the yield curves. The same people and simply extending the notion of what are the best local steps to take to saying: What are your best approximations of how the population responds to the habitat.

Q. Now, you mentioned that you should,

in your view, move as quickly as possible in that direction which is administratively and practically possible.

I guess the question that's in my mind is: What does that mean? Do you have any sense of -- like, are we talking 10 years, 18 months, 20 years, is there some -- obviously you can't give me a specific time, but some indication, some relative indication of how quickly you think would be reasonable to at least get that first cut that we could - how should I say - start on the learning curve as you call it?

A. There are inherent problems here in I think just about every jurisdiction that wildlife and timber have been separated, so that there is some philosophical things to overcome in actually making this happen.

To use as an example only, the idea of doing this in New Brunswick must have emerged somewhere around 1984 or '85. It certainly appeared as a prospective master of forestry report by that time, it must have been -- people must have been thinking about it. To get it to a point where there is tolerance of the players that this kind of activity is worthy of the computer time and time on the geographic information system has taken from then until the present. It is

now a very active program and quite substantially supported outside the province by Wildlife Habitat Canada.

I think that the initial funding of Wildlife Habitat Canada probably is the thing that got it off the ground far enough that the management structure, the equivalent of MNR, viewed it as something they should be into and began to move.

My impression is that we are five years yet from where we will have people discussing this in the level at which they discuss timber management now, timber forecasting.

THE CHAIRMAN: You mean in Ontario?

THE WITNESS: No, in that case where it is already going. So it's a 10-year process is what I am saying.

THE CHAIRMAN: 10-year, okay.

THE WITNESS: And will be incredibly uneven. There are only -- you have to remember that there are five -- four or five of your management units which are in fact larger than the total Crown land of New Brunswick. In a relatively small area, it's -- we're compact, where people talk to one another. This has not been a simple process to introduce, but as it has gained momentum and the analogue to what they were

already doing has grown rapidly.

And, in my view, one of the most pleasant things to discover is that industry has embraced it as a way to allow them, instead of reacting to constraints, to put themselves in it, they have contracts equivalent, all of them, to FMAs, to put them in a position where they are proposing rather than responding. They appear to be more comfortable in that role.

THE CHAIRMAN: So we gather from that that 10 years is certainly not an abnormal period within which to expect some substantial movement, but at the same time you are dealing in that 10-year process of what you have experienced with a fairly small geographic area compared to what we might be facing in Ontario?

THE WITNESS: And with two or three really agressive people pushing it.

MR. HANNA: Q. Dr. Baskerville, were you not faced with a similar type of dilemma with the OWOSFOP model in that it took a while to develop that prototype, there is a lot of, if you will, initial energy put into it and whatever, but did that technology not become very transferrable; in other words, did not what happened in New Brunswick basically

break a lot of the ground for Ontario when they took WOSFOP and made OWOSFOP and did all of those great things with it?

It avoided the need to develop the whole conceptual technology all over and whatever, it was a matter of fine-tuning it to the specific area?

A. Yes. WOSFOP wasn't the first of those models. The first one that I have been able to detect actually was built by a consulting firm in Quebec and applied some time in the late 60s to Nova Scotia Forest Industries.

And curiously we think again in terms of how good the Swedes are. One of the things I discovered was that the parent company in Sweden this summer is using a descendant of that same model. I found kind of interesting, they acknowledged it in fact in the programming is embedded the source of it.

The difficulty always is when you are trying to offer something that is conceptually broader, that it allows knowledge that is usually thought of as related to a piece of ground I can stand on and look around to say suddenly: I am going to give you the capability to pretend you can do that from half a million hectares, is I guess resisted, resisted because intuitively you know you can't see that; it gives you

the illusion that you can see the whole thing, but you know you really can't.

It's probably significant that the model WOSFOP which did -- although it wasn't the first to create a lot of change as it did and its author moved across the country, was actually written by an astrophysicist not by a forester. He left astrophysics to come and get a Master of Forestry Degree and he asked for: What are your principles. He wanted our basic equations, our Newton's law and these sorts of things, so that he could get started in his learning.

And we didn't have any, I guess, when it came right down to it that we could offer him in the context that he was looking for. He was looking for things that were laws, and there are very few laws in biology because of genetic variability.

His reaction to that was: Well, I am going to codify it. So as he began to learn what it was we were doing, he said: I am simply going to codify what you are doing and that's what WOSFOP turned out to be. He discovered that if he did it in a manner that was completely transparent so that everybody could see what was happening, that people would use it.

And could we get them to use it? Ten years ago I remember some pretty severe arguments

about whether or not they would use it but, as I said yesterday, I think you would have an awfully hard argument to get anybody not to use a model that characterized forest dynamics now, and it doesn't have to be that one or any of its descendents, but if you went -- I can't imagine where in this country there would be a manager who would not want to see some kind of systematic forecast of his interventions on forest dynamics.

THE CHAIRMAN: Thank you.

Mr. Hanna, I think we will break for today.

I understand that counsel wants to utilize the hearing room for discussions. Make yourself at home, and we will commence tomorrow again at 9:00 a.m.

MR. MARTEL: How far are you?

MR. HANNA: Mr. Chairman, perhaps just for the other parties, there is a possibility I will finish tomorrow.

Mr. Cosman has spoken to me and I will be speaking to him this evening and tomorrow morning. He may have a potential scheduling problem. If he does, then we will come before the Board. I have spoken to him and I am sure we can work it out between us, if

it's acceptable to the Board, but if that is the case...

THE CHAIRMAN: Sorry. Which party have we forgotten? We don't have our notes here for that. Which party comes after yourself?

MR. HANNA: Oh, I'm sorry. I believe Mr. Curtis may be following, although I am not sure, Mr. Chairman. I don't think his order has been sorted out for sure. It will certainly either be the forest industry or it will be --

MS. DEVAUL: I believe it is the Ontario Forest Industry Association--

MR. COSMAN: Yes.

MS. DEVAUL: --followed by MOE, followed by the Professional Foresters, followed by MNR.

MR. COSMAN: Mr. Chairman, just while I was out I understand Mr. Hanna spoke to the point --

THE CHAIRMAN: Well, he is indicating he may finish off tomorrow.

MR. COSMAN: Let me tell you, just to avoid delay later on. I have had for four months a fixed date at Divisional Court for an appeal on Monday. I was hoping I wouldn't even have to raise it. The way things are going, it looks like in the ordinary course of things I may be reached on Monday.

So there are two alternatives; one is that, if parties will permit, I can start Tuesday morning at nine o'clock or, alternatively, I would have to get Mr. Hanna to break his cross-examination. I am in the parties' hands and in your hands as to how I can do it, but I am willing to do it either way.

MR. HANNA: Mr. Chairman, as far as I am concerned, I am happy to do it either way also.

THE CHAIRMAN: How long are you going to be?

MR. COSMAN: I think, Mr. Chairman, on the basis of what I have heard, one and a half hours.

THE CHAIRMAN: One and a half hours. If you were to proceed tomorrow and then finish off, and then Mr. Hanna continues after you, and then continues next week if, for some reason, he shouldn't finish, that way we won't lose the day.

MR. COSMAN: That's right, Mr. Chairman. So if Mr. Hanna went in the morning and I started at two o'clock, 2:00 to 3:30 or whenever, and then he would finish the day, that's fine with me

THE CHAIRMAN: All right. We will proceed in that fashion then.

Thank you. We will start at nine tomorrow.

---Whereupon the hearing adjourned at 5:15 p.m., to be reconvened on Thursday, December 6th, 1989, commencing at 9:00 a.m.